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An Empirical Analysis of the Petroleum Refining Industry's Participation in the FASB's Standard- Setting Process

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Paulette R. Tandy and Nancy L. Wilburn

INTRODUCTION

One of the greatest strengths of the Financial Accounting Standards Board (hereafter referred to as the FASB or the Board), and one of the strongest reasons for its continuance, is the existence of open due process procedures. The mission statement of the FASB includes the precept that the Board must weigh carefully the views of its constituents in developing concepts and standards (FASB web site, www.FASB.org). Dennis Beresford, former chair of the FASB, has stated that the keys to successful accounting standard-setting are a sound due process and the confidence of constituents that their views are given careful consideration (Beresford 1995).

Despite the recognized importance of constituent input, participation in the FASB's standard-setting process has been limited. Tandy and Wilburn (1992) estimated that a mere 0.002 percent of corporations in the U.S. submitted a comment letter to the FASB concerning the first 100 Statements of Financial Accounting Standards (FASs) issued. Companies in the petroleum refining industry, however, have been visible participants in this process. An analysis of Fortune 500 companies' participation from 1973-1998 reveals that of the 20 companies submitting the greatest number of comment letters, seven were in the petroleum refining industry (Tandy and Wilburn 1999). Furthermore, results from prior research indicate that differences exist between the petroleum industry and other industries for lobbying behavior, accounting choices, and tax rates (Bowen, et al. 1981; Zimmerman 1983; Wilburn and Kilpatrick 1990). This study explores further the participation of petroleum refining companies in the standard-setting process during the FASB's first 25 years.

PRIOR RESEARCH AND RESEARCH QUESTIONS

Most of the FASB's constituents can be categorized into three groups: (1) preparers of financial statements (e.g., corporate management); (2) users of financial statements (e.g., investors and creditors); and (3) attestors of financial statements (e.g., public accounting firms). While the FASB values input from all constituent groups, preparers have dominated the participation process. On documents preceding *FAS Nos. 1-100*, 60.7 percent of all individual comment letters were submitted by preparers, including participants from the petroleum refining industry (Tandy and Wilburn 1992).

Prior research investigating the participation of corporate management centers on the development of a positive theory of management's role in the selection of accounting methods and the formulation of accounting standards. On a general level, a positive theory asks why management is concerned with the accounting procedures used in preparing financial reports. Management's involvement in external financial reporting can be seen in (1) the selection of alternative accounting methods and levels of disclosure, or (2) a reaction to proposed or enacted standards in the form of lobbying, discretionary accounting changes, and changes in activities of the firm (Kelly 1983).

A few studies have focused on the selection of alternative accounting methods as specifically related to the petroleum industry. Deakin (1979) examined the selection between successful efforts and full cost methods and tested the effects on this decision of the company's aggressiveness in exploration, the demand for capital, size, and age. Using seven variables to represent these company characteristics, he found that full cost companies were more highly leveraged than other companies; however, he did not find support for any of the other variables. Lilien and Pastena (1982) also studied the accounting choice between

successful efforts and full cost. They examined the impact of each company's size, debt/equity ratio, ratio of dry wells/total wells (as a surrogate for variability of earnings), and age on this accounting choice. They found that larger and older firms were more likely to use successful efforts while firms with higher exploratory risk and more leverage were more likely to use full cost. Johnson and Ramanan (1988) extended this research to study oil and gas producing companies that changed from successful efforts to full cost accounting during the period from 1970 through 1976. Consistent with results obtained by earlier studies, they found that full cost adoption was associated not only with high leverage and capital expenditure levels, but also with concurrent increases in debt financing and, to a lesser extent, exploration activities. These three studies suggest that, when given a choice, petroleum industry managers have chosen accounting methods based upon the economic consequences of these accounting methods on their companies.

Other positive theory studies have focused on the petroleum industry's lobbying behavior. Deakin (1989) investigated management lobbying on accounting for oil and gas producing activities. Since the issue affected a specific industry where the direction of the effect associated with the issue on income and equity was almost uniformly the same, it provides an opportunity to study factors that may be associated with the decision to lobby. He found that debt covenant, management compensation, regulatory, and financial statement effect costs were positively associated with an oil and gas firm's decision to lobby on this issue. Wilburn and Kilpatrick (1990) compared the lobbying positions of petroleum industry companies with other industrial companies on documents preceding *FAS No. 87*, "Employers' Accounting for Pensions." Their results indicate differences between the lobbying positions of petroleum industry constituents and other industry constituents on issues that affected the balance sheet, the income statement, and leverage positions.

This study expands prior research on the lobbying behavior of petroleum refining companies by taking a *macro* or *temporal* view of participation on all documents issued over the FASB's 25-year history that led to a final statement. We focus on the relatively large companies that have been included on the *Fortune 500* list during the past 25 years, with an expanded analysis of participation by petroleum refining companies and comparisons with participation by other companies. Our first two research questions ask:

- (1) What is the extent of overall *Fortune 500* petroleum refining industry participation?
- (2) Has overall *Fortune 500* petroleum refining industry participation changed over time?

Corporate management is expected to participate in the FASB's standard-setting process if the expected benefits of lobbying exceed the perceived costs (Kelly 1983). Benefits may include:

- (a) the advantage to be gained from a favorable outcome (avoidance of costs associated with the mandated change in accounting method) weighted by the probability of influencing the decision (Kelly 1983; Deakin 1989);
- (b) the advantage to be gained from systematic monitoring of proposed FASB rules (e.g., implementation costs may be reduced by earlier knowledge and preparation) (Buckmaster and Hall 1990); and
- (c) the psychological benefits of lobbying (e.g., the constituent may believe that observable participation will help perpetuate the desired private sector control of the standard-setting process).

The benefits may depend upon the corporation's philosophy toward participating or its preference positions taken on issues addressed in relationship to final standard decisions and management's understanding of how input affects the standards setting process (Brown 1982).

Costs of participation may include:

- (a) the costs of systematic monitoring of FASB activities, reading the documents issued by the FASB, analysis of the impact of the proposal on the corporation, and performing research upon which to base a response (Gaa 1988; Sutton 1984; Buckmaster and Hall 1990); and
- (b) the costs of participation, including the use of management time in preparing a comment letter and/or making a personal appearance at a public hearing.

Little is known about the specific costs and benefits of preparer participation, in general, and petroleum constituent participation, in particular. However, the scope of the statement under consideration may affect the perceived benefits since the outcome of the FASB's deliberations may have a greater impact

on an increased number of companies' financial statements if the issue is sufficiently broad. Therefore, our third research question addresses whether the scope of the standards (according to their classification as substantive, amendment, or industry standards) affects participation:

- (3) Is overall *Fortune 500* petroleum refining industry participation affected by the scope of the standard under consideration?

After examining overall levels of petroleum constituent participation, we turn to participation by the individual *Fortune 500* petroleum companies. Since the costs and benefits of participation may differ among companies, the companies are expected to differ in levels of participation. This leads to our final research question:

- (4) What is the extent of participation over time by individual *Fortune 500* petroleum refining companies?

DATA COLLECTION

Our database is comprised of data on participation for *Fortune 500* petroleum refining and other industrial companies on the 173 documents issued from 1973-1997 preceding FAS Nos. 1-133. These documents include *Discussion Memorandums*, *Invitations to Comment*, *Exposure Drafts*, and *Revised Exposure Drafts*, as well as other less-frequently used documents, issued in developing the final statements. We define participation as the submission of comment letters, since testimony at public hearings must also be accompanied by a comment letter or presentation outline. In order to limit the number of companies tracked over the 25-year period, we use *Fortune 500* industrial companies because changes over time (such as name changes, mergers, etc.) can be identified with information provided in the *Fortune* listings.¹ For each year from 1973-1997, we identify the petroleum refining and other *Fortune 500* companies and then examine whether those companies participated on documents issued during that year.

To develop our participation database, we obtained information from two sources:

- (1) The FASB's *Index to Submissions* for each document, which lists the specific respondents; and
- (2) *Fortune 500* industrial rankings for each year from 1973-1997.

For our analysis, we classify each FASB document by (1) the category of scope of the related final standard and (2) the period issued, as follows:

- (1) *Substantive Standard*: sets standards for accounting issues where standards did not previously exist, or completely supersedes prior standards;
- (2) *Industry Standard*: pertains to industry-specific accounting issues, or to a specialized group of entities such as governmental or not-for-profit; or
- (3) *Amendment*: amends, revises, interprets, clarifies, or supersedes a *portion* of a previous standard (although an industry-specific amendment is classified as an industry standard).

We divide the FASB's 25 years into five periods of five years each: 1973-1977; 1978-1982; 1983-1987; 1988-1992; and 1993-1997.

¹ Starting in 1994, *Fortune* merged rankings for industrials and service firms. In order to maintain consistency of our sample throughout the entire 25-year period in this study, we use only the industrial firms ranked in the *Fortune 1000* for 1994-1997 (which results in 433 firms for 1994, 430 for 1995, 424 for 1996, and 424 for 1997). For convenience in this paper, we still refer to these industrial companies as the *Fortune 500*. We exclude companies listed in the service 500 because these listings are not available prior to 1983; prior to 1983 *Fortune* presented "top 50" lists for six industries, which subsequently became part of the service 500.

Table 1 indicates that we classify 44 final statements as substantive, 41 as industry, and 48 as amendments, resulting in classification of the 173 documents preceding these statements as 78 substantive, 42 industry, and 53 amendments. Of the 42 industry documents, seven pertain to oil and gas producing companies. There were 36 documents issued in period one, and 64, 28, 24, and 21, in periods two, three, four, and five, respectively.

Table 1				
Classification of Scope of Standards and Preceding Documents				
	Substantive	Industry	Amendment	Total
No. of Final FAS's:	44	41	48	133
% of 133	33.1%	30.8%	36.1%	
No. of Preceding Documents Issued in Period:				
One (1973-1977)	23	3	10	36
Two (1978-1982)	20	23	21	64
Three (1983-1987)	12	7	9	28
Four (1988-1992)	10	6	8	24
Five (1993-1997)	13	3	5	21
Total	78	42	53	173
% of 173	45.1%	24.3%	30.6%	

DATA ANALYSIS AND RESULTS

(1) What is the extent of overall *Fortune 500* petroleum refining industry participation?

Table 2 presents summary data regarding *Fortune 500* participation on the 173 documents included in this study. Descriptive statistics in Panel A show that petroleum refining companies comprise a mean of 6.6 percent of all *Fortune 500* companies. However, petroleum refining companies submitted 1,033 comment letters, representing 17.8 percent of all *Fortune 500* letters. The mean (median) percentage of petroleum companies participating was 18.4 percent (13.9 percent) with a range of 0 percent to 66.7 percent. Petroleum industry participation is substantially greater than other industrial companies' participation with a mean (median) participation rate of 5.9 percent (3.7 percent) and a range of 0 percent to 33.3 percent. Frequency data in Panel B indicate that over 50 percent of petroleum companies submitted comment letters on nine documents, whereas no petroleum refining companies participated on 28 documents.

Table 2

Summary Data for *Fortune 500* (F500) Petroleum Refining Company and Other Industrial Company Participation on the 173 Documents Preceding *FAS Nos. 1-133*

Panel A: Descriptive Statistics		
Total Petroleum Refining letters on all documents		1,033
Total F500 letters on all documents		5,791
Petroleum letters as a percentage of F500 letters		17.8%
Mean percentage of number of petroleum companies in F500		6.6%
	% of Petroleum Companies Participating	% of Other Industrial Companies Participating
Mean per document	18.4%	5.9%
Standard deviation	16.4%	6.9%
Minimum	0.0%	0.0%
Median	13.9%	3.7%
Maximum	66.7%	33.3%
Panel B: % of F500 Petroleum Companies Participating Per Document		
% of Petroleum Companies Participating	Number of Documents	% of Total
0%	28	16.2%
>0% -10%	39	22.5%
>10% -20%	38	22.0%
>20% -30%	22	12.7%
>30% -40%	25	14.5%
>40% -50%	12	6.9%
>50% -60%	6	3.5%
>60% -70%	3	1.7%
Total	173	

Table 3 lists the documents that elicited the most *Fortune 500* petroleum refining participation in terms of percentage of petroleum companies responding. Four of the top ten documents pertain to industry standards related to oil and gas producing companies, with the greatest participation for the *Exposure Draft* preceding *FAS No. 19* on financial accounting and reporting by oil and gas producing companies. The other top six documents relate to substantive standards for pensions and other postretirement benefits, changing prices, income taxes, and leases.

Table 3
Top Ten Documents on Percentage of *Fortune 500* Petroleum Refining Companies Participating

Final FAS No.	Scope of Statement	Document Date	Type of Document* and Title	No. of Petroleum Letters	No. of F500 Petroleum Cos.	% of Petroleum Cos. Responding
19	Industry	07/15/77	<i>ED</i> : Financial Accounting and Reporting by Oil and Gas Producing Companies	22	33	66.7%
19	Industry	12/23/76	<i>DM</i> : Financial Accounting and Reporting in the Extractive Industries	18	28	64.3%
9	Industry	04/25/75	<i>ED</i> : Accounting for Income Taxes: Oil and Gas Producing Companies— an amendment of APB Opinions No. 11 and 23	18	29	62.1%
106	Substantive	02/14/89	<i>ED</i> : Employers' Accounting for Postretirement Benefits Other than Pensions	14	27	51.9%
35	Substantive	04/14/77	<i>ED</i> : Accounting and Reporting by Defined Benefit Pension Plans	17	33	51.5%
69	Industry	05/13/81	<i>IC</i> : Disclosures About Oil and Gas Producing Activities	21	41	51.2%
87,106	Substantive	11/00/82	<i>PV</i> : Employers' Accounting for Pensions and Other Postemployment Benefits	19	38	50.0%
82,89	Substantive	12/27/83	<i>IC</i> : Supplementary Disclosures about the Effects of Changing Prices	18	36	50.0%
96	Substantive	08/29/83	<i>DM</i> : Accounting for Income Taxes	18	36	50.0%
13	Substantive	11/06/75	<i>ED</i> : Accounting for Leases	14	29	48.3%

* Abbreviations used are: *ED*—exposure draft; *DM*—discussion memorandum; *IC*—invitation to comment; *PV*—preliminary views

As Table 4 indicates, there are 28 documents with zero letters from *Fortune 500* petroleum refining companies. Of these, 19 documents pertain to industry standards for other industries, six are amendments, and three are substantive standards. The documents related to substantive standards include the *Revised Exposure Draft* for accounting for contributions, the *Exposure Draft* for transfers and servicing of financial assets and extinguishments of liabilities, and the *Tentative Conclusions* for hedging and other risk-adjusting activities.

Table 4

Documents with the Zero Letters from *Fortune 500* Petroleum Refining Companies

Final FAS No.	Scope of Statement	Document Date	Type of Document* and Title
17	Amendment	08/08/77	<i>ED</i> : Accounting for Leases: Initial Direct Costs—an amendment of FASB Statement No. 13
44	Industry	10/24/80	<i>ED</i> : Accounting for Intangible Assets of Motor Carriers—an amendment of Chapter 5 of ARB 43 and an interpretation of APB Opinions 17 and 30
45	Industry	12/01/80	<i>ED</i> : Accounting for Franchise Fee Revenue
50	Industry	06/12/81	<i>ED</i> : Accounting by the Entertainment Industry: Records and Music
51	Industry	06/12/81	<i>ED</i> : Accounting by the Entertainment Industry: Cable Television
53	Industry	06/12/81	<i>ED</i> : Accounting by the Entertainment Industry: Motion Picture Films
54	Industry	11/16/81	<i>ED</i> : Financial Reporting and Changing Prices: Investment Companies—an amendment of FASB Statement No. 33
60	Industry	11/18/81	<i>ED</i> : Accounting by the Insurance Industry: Accounting and Reporting by Insurance Enterprises
61	Industry	11/18/81	<i>ED</i> : Accounting by the Insurance Industry: Accounting for Title Plant
63	Industry	06/12/81	<i>ED</i> : Accounting by the Entertainment Industry: Broadcasters
65	Industry	02/03/82	<i>ED</i> : Accounting for Certain Mortgage Banking Activities
72	Industry	10/07/82	<i>ED</i> : Accounting for Certain Acquisitions of Banking or Thrift Institutions—an amendment of APB Opinion No. 17 and an interpretation of APB Opinion No. 16
75	Industry	06/07/83	<i>ED</i> : Deferral of the Effective Date of Certain Accounting Requirements for Pension Plans of State and Local Governmental Units—an amendment of FASB Statement No. 35
91	Amendment	09/28/84	<i>IC</i> : Accounting for Nonrefundable Fees and Costs Associated With Originating or Acquiring Loans
93	Industry	12/23/86	<i>ED</i> : Recognition of Depreciation by Not-for-Profit Organizations
113	Industry	03/00/92	<i>ED</i> : Accounting and Reporting for Reinsurance of Short-Duration and Long-Duration Contracts
116	Substantive	11/00/92	<i>RED</i> : Accounting for Contributions Received and Contributions Made
117	Industry	08/29/89	<i>IC</i> : Financial Reporting by Not-For-Profit Organizations: Form and Content of Financial Statements
117	Industry	10/23/92	<i>ED</i> : Financial Statements of Not-For-Profit Organizations
118	Amendment	03/31/94	<i>ED</i> : Accounting by Creditors for Impairment of a Loan—Income Recognition—an amendment of FASB Statement No. 114
120	Industry	03/24/94	<i>ED</i> : Accounting and Reporting by Mutual Life Insurance Enterprises and by Insurance Enterprises for Certain Long-Duration Participating Contracts—an amendment of FASB Statements No. 60, 97, and 133
122	Industry	06/28/94	<i>ED</i> : Accounting for Mortgage Servicing Rights and Excess Servicing Receivables and for Securitization of Mortgage Loans
124	Industry	03/31/95	<i>ED</i> : Accounting for Certain Investments Held by Not-For-Profit Organizations
125	Substantive	10/24/95	<i>ED</i> : Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities
126	Amendment	09/20/96	<i>ED</i> : Elimination of Certain Disclosures About Financial Instruments by Small Nonpublic Entities—an amendment of FASB Statement No. 107
127	Amendment	11/11/96	<i>ED</i> : Deferral of the Effective Date of Certain Provisions of FASB Statement No. 125—an amendment of FASB Statement No. 125
132	Amendment	07/31/95	<i>PRS</i> : Disclosure Effectiveness
133	Substantive	06/00/93	<i>TC</i> : A Report on Deliberations, Including Tentative Conclusions on Certain Issues, Related to Accounting for Hedging and Other Risk-Adjusting Activities

* Abbreviations used are: *ED*—exposure draft; *RED*—revised exposure draft; *IC*—invitation to comment; *PRS*—Prospectus; *TC*—Tentative Conclusions

- (2) Has overall *Fortune 500* petroleum refining industry participation changed over time?
- (3) Is overall *Fortune 500* petroleum refining industry participation affected by the scope of the standard under consideration?

We use analysis of variance (ANOVA) to test for significant differences in the mean percentage of *Fortune 500* petroleum companies participating per document for: (1) the scope of the standard, (2) the period, and (3) the interaction of scope and period.² Results in Panel A of Table 5 indicate that the percentage of petroleum companies participating depends on both scope of the standard and period, as well as the interaction of scope and period (scope, $p = 0.0001$; period, $p=0.0001$; interaction, $p=0.0001$).

Table 5
ANOVA and Multiple Comparison Results

Panel A: ANOVA: Dependent Variable—% of *Fortune 500* Petroleum Refining Companies Participating Per Document

Source	DF	Sum of Squares	Mean Square	F Value	p Value
Scope	2	6,159.28	3,079.64	21.03	0.0001
Period	4	6,749.69	1,687.42	11.52	0.0001
Scope × Period	8	10,520.01	1,315.00	8.98	0.0001
Error	158	23,133.48	146.41		

Panel B: Multiple Comparisons Tests*

	Scope of Standard				
	Substantive	Amendment	Industry		
Mean % of Petroleum Cos. Participating	26.50%	12.98%	10.31%		
		*****	**		
	Period Document Issued				
	1 (73-77)	3 (83-87)	4 (88-92)	2 (78-82)	5 (93-97)
Mean % of Petroleum Cos. Participating	25.61%	21.16%	16.93%	16.20%	10.97%
	*****	*****	*****	*****	*****

* Means underlined with ***** are not significantly different at the .05 level using Duncan's Multiple Range test.

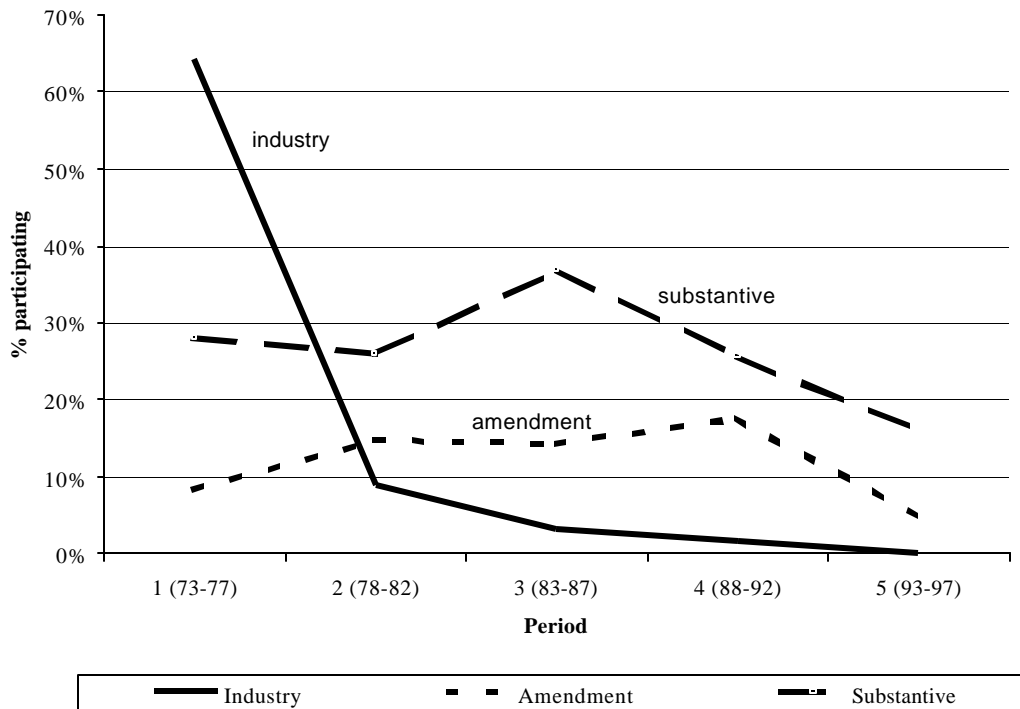
Panel B reports results of multiple comparisons tests that further examine significant differences in participation detected in the ANOVAs. We perform comparisons across scope and periods for the mean percentage of *Fortune 500* petroleum companies participating. Results for scope indicate that participation on substantive standards (26.50%) is significantly greater than that for amendments (12.98%) and industry standards (10.31%), while there is no significant difference detected between participation on amendments and industry standards. However, it should be noted that the mean participation percentage for industry

² We also perform an ANOVA using the number of petroleum letters as the dependent variable. Results are consistent with those using the percentage of petroleum companies participating.

standards includes participation on oil and gas related documents.³ Further analysis reveals that the mean percentage for the seven oil and gas industry documents is 49.77 percent whereas the mean percentage for the 35 remaining other industry documents is only 2.43 percent. The highest level of petroleum industry participation is for period one (1973-1977), with a mean participation rate of 25.61 percent, and the lowest level is for period five (1993-1997), with a mean participation rate of 10.97 percent.

The significant interaction of scope and period is graphically presented in Figure 1. The interaction is due to the level of participation on industry documents (which includes documents relating to oil and gas accounting) in period one. As noted in Table 3, this period includes three oil and gas industry documents that generated unusually high levels of participation from petroleum companies. Period five includes nine documents out of 21 that generated a zero participation rate.

Figure 1
Interaction of Scope and Period



(4) What is the extent of participation over time by individual *Fortune 500* petroleum refining companies?

Table 6 identifies the 15 petroleum refining companies that are included in the *Fortune 500* lists all 25 years and describes their participation. All of the petroleum refining companies participated to some extent on the 173 documents included in this study. Not surprisingly, the highest participation rate was for oil and gas industry documents, with eight companies submitting six or seven letters on the seven documents. Exxon submitted the most comment letters, with 54 letters on substantive documents (69 percent participation rate), 28 letters on amendments (53 percent participation rate), seven letters on oil and gas industry documents (100 percent participation rate), and five letters on other industry documents (14 percent participation rate). Of the petroleum refining companies, Murphy Oil participated the least, submitting a total of nine comment letters.

³ We did not analyze oil and gas related documents as a separate category of scope in the ANOVA since there were no oil and gas related documents in three of the five periods.

Table 6
Participation by Individual *Fortune 500* Petroleum Refining Companies

Company	Number of Letters Submitted per Type of Document				
	Substantive (n = 78)	Amendment (n = 53)	Oil and Gas Industry (n = 7)	Other Industry (n = 35)	Total (n = 173)
Exxon	54	28	7	5	94
Texaco	61	23	6	1	91
Chevron	53	14	6	0	73
Mobil	55	8	6	0	69
Amoco	44	17	7	0	68
USX	37	18	4	2	61
Unocal	37	14	7	2	60
Phillips Petroleum	40	12	6	1	59
Atlantic Richfield	38	7	6	3	54
Sun	16	2	5	0	23
Amerada Hess	13	5	1	0	19
Kerr-McGee	12	4	0	0	16
Ashland	9	4	2	0	15
Pennzoil	10	1	4	0	15
Murphy Oil	3	3	3	0	9

Table 7 presents data regarding the total number of comment letters submitted by the 15 petroleum refining companies versus the 163 other industrial companies that were included in the *Fortune 500* lists all 25 years. Compared with other industrial companies, the petroleum refining industry is more active in participation, with 60 percent of the companies submitting over 50 comment letters. Only 9.2 percent of other industrial companies submitted over 50 comment letters and 5.5 percent did not submit any letters on the 173 documents.

Table 7
Participation by Individual *Fortune 500* Companies

Total Number of Letters Submitted*	Number (%) of Petroleum Companies (n=15)	Number (%) of Other Industrial Companies (n=163)
0	0 (0.0%)	9 (5.5%)
1-25	6 (40.0%)	109 (66.9%)
26-50	0 (0.0%)	30 (18.4%)
51-75	7 (46.7%)	9 (5.5%)
76-100	2 (13.3%)	6 (3.7%)

* The most letters submitted by an individual company was 97 from General Electric.

SUMMARY AND CONCLUSIONS

This study presents an examination of the *Fortune 500* petroleum refining industry participation in the FASB's standard-setting process. Although petroleum companies comprise only 6.6 percent of *Fortune 500* companies, they submitted approximately 18 percent of all *Fortune 500* comment letters on the 173 documents preceding *FAS Nos. 1-133*, with an average of 18.4 percent of petroleum companies participating per document. The level of petroleum industry participation is affected by the scope of the standard under consideration and the time period the document was issued. Substantive standards generate significantly more letters from petroleum companies than amendments or industry standards. However, industry standards in the period 1973-1977 attracted the highest level of petroleum refining industry participation driven by the oil and gas industry documents issued in that period.

All of the individual petroleum refining companies that are listed on the *Fortune 500* throughout the 25-year period submitted comment letters, ranging from nine to 94 letters. Compared to individual companies in other industries, the petroleum companies participate much more frequently.

Results in this study confirm and expand those from prior research. Results suggest that researchers need to include controls for industry affiliation in their statistical design and/or evaluate the sensitivity of the results for industry affiliation. Future research may expand the scope of this study by further examining participation by individual petroleum companies and the factors affecting the participation choice.

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