AD-A158 241 DEFENSE FINANCIAL AND INVESTMENT REVIEW APPENDIX 1 1/2
VOLUME 1 TOUCHE ROSS & COMPANY FINANCIAL DATA SURVEY
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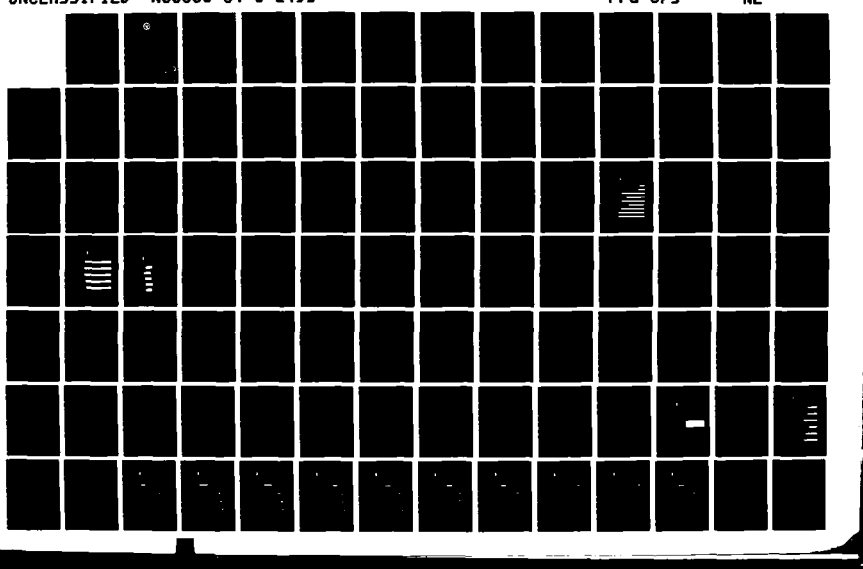

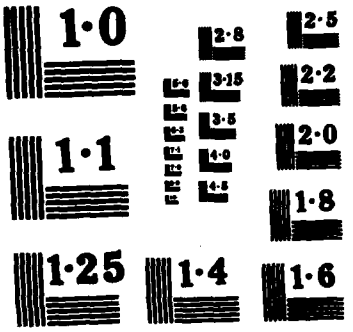

Department of Defense

Defense Financial and Investment Review

FINAL REPORT

Appendix 1

Volume I

Touche Ross & Co.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Contract Profits,
Contractor Income Statement Data
Contractor Balance Sheet Data,
Contractor Financial Data
Profit Study,
DFAIR

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
Touche Ross & Co. performed a financial data survey to support the Defense Financial and Investment Review study. Data was collected from 76 DoD contractors for the period 1975-1983. The report contains contractor income statement and balance sheet information for the nine-year period by DoD product code groupings. This report is not required to understand the Defense Financial and Investment Review final report, but it does contain financial information which would be useful for additional studies in this area.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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I. EXECUTIVE SUMMARY

A. BACKGROUND AND STUDY OBJECTIVES

On December 2, 1983, the Deputy Secretary of Defense initiated a major study of defense contract pricing, financing and profit policies, called the Defense Financial and Investment Review (DFAIR). The purpose of the study was to examine and evaluate Department of Defense (DOD) policies to insure that they result in equitable, efficient, and effective spending of public funds while maintaining the viability of the defense industrial base.

B. STUDY APPROACH

As a major step in accomplishing the stated study objectives, DFAIR conducted a survey of the defense industry to determine the effects of existing DOD policies. Defense contractors were asked to provide financial and operating data for segments that engage in defense business for the period 1975 through 1983. Touche Ross & Co. administered the survey and assisted in analyzing and interpreting the data obtained from the survey. A key requirement of the data collection effort was to insure the confidentiality of contractors' data. Only summary data was provided to DOD. Touche Ross did not release any information from which DOD (or any other party) could identify a single contractor.

C. OVERVIEW OF DATA COLLECTION PROCESS

A data collection package was sent to contractors selected to participate in the survey. The contractors' completed schedules were forwarded to the contractors' outside certified public accountants (CPAs) who reviewed the data in relation to the definitions and instructions contained in the survey instrument. After the CPA review, completed schedules were forwarded to Touche Ross.

D. OVERVIEW OF PARTICIPATING CONTRACTORS

The Defense Financial and Investment Review identified 126 contractors for inclusion in the DFAIR study. Awards to these contractors during the 1980-1983 time period represented 74% of the contracts which were not susceptible to having their prices set by the market place. For example, this would exclude oil and textiles. Data collection packages were mailed to each of these contractors, requesting that they participate in the survey. Exhibit I-1 identifies the 76 defense contractors whose data were used in this report. Awards to these 76 contractors represent 67.8% of the 1983 DOD procurement budget referred to above for the period 1980-1983. (Note: All exhibits are included at the end of that section in which they are referred).

In 1975, the Deputy Secretary of Defense directed that a study ("Profit '76") be performed on the relationship between contractor capital investment and corresponding productivity. In the "Profit '76" study, data were obtained from 64 contractors. Of these 64 contractors, 50 also participated in the DFAIR study. Exhibit I-2 identifies the "Profit '76" participants who are participating in the DFAIR study. Further analyses and descriptions of the contractors are provided in Appendix I to this report.

E. OVERVIEW OF DATA COLLECTION PACKAGE

A data collection package was designed to collect defense contractor financial information. The package provided detailed instructions and schedules for participating contractors to provide information on their operations for the nine year period ended in 1983. The schedules requested the respondent to provide selected income statement and balance sheet data for each of the nine years (1975 through 1983).

Contractors were requested to report data for each segment (not to exceed five segments) whose annual sales satisfied either of the two parameters identified below:

1. Sales to DOD were equal to or greater than 25% of total segment sales; or

2. Sales to DOD were at least $50 million.

A copy of the data collection package is provided in Appendix VII under a separate cover.

F. SUMMARY RESULTS

Exhibits I-3 through I-9 show the comparative financial performance of DFAIR survey participants for their reported segments with the Quarterly Financial Report data for durable goods for the period 1975 through 1983. The results of the analysis generally indicate that the return on assets for DFAIR participants has been improving relative to durable goods manufacturers since about 1980. This is due in part to the economic recession in the early 1980's which seems to have had a greater impact on durable goods manufacturers than it did on DFAIR participants. This and other analyses performed are described in detail in Section VI of this report.

I. EXECUTIVE SUMMARY EXHIBITS

Exhibit I-1

DFAIR PARTICIPANTS

1. AEL Industries, Inc.
2. AT&T
3. Aeronautical Radio, Inc.
4. Allied Corp.
5. Arvin Industries
6. Atlantic Research Corp.
7. Avco Corp.
8. BDM International, Inc.
9. Boeing Co., The
10. CACI
11. Cincinnati Electronics
12. Colt Industries, Inc.
13. Computer Sciences Corp.
14. Control Data Corp.
15. E-Systems, Inc.
16. EG&G, Inc.
17. Eaton Corp.
18. Edo Corp.
19. Emerson Electric Co.
20. FMC Corp.
21. Fairchild Industries, Inc.
22. Figgie International, Inc.
23. Flow General Corp.
24. GTE Corp.
25. General Dynamics Corp.
26. General Electric Co.
27. General Motors Corp.
28. General Tire and Rubber Co., The
29. Goodyear Tire & Rubber Co. The
30. Gould, Inc.
31. Grumman Corp.
32. Harris Corp.
33. Harsco Corp.
34. Hazeltine Corp.
35. Hercules, Inc.
36. Honeywell, Inc.
37. Hughes Aircraft Co.
38. IBM Corp.
39. ICI Americas, Inc.
40. ITT Corp.
41. Kaman Corp.
42. LTV Corp.
43. Lear Siegler, Inc.
44. Litton Industries, Inc.
45. Lockheed Corp.
46. Logicon, Inc.
47. Martin Marietta Corp.
48. McDonnell Douglas Corp.
49. Mine Safety Appliances Co.
50. Morrison Knudsen Co., Inc.
51. Morton Thiokol, Inc.
52. Motorola, Inc.
53. NI Industries
54. Norfolk Shipbuilding & Drydock Co.
55. North American Philips Corp.
56. Northrop Corp.
57. Pan American World Services, Inc.
58. Penn Central Corp.
59. RCA Corp.
60. Raytheon Co.
61. Rockwell International
62. Sanders Associates, Inc.
63. Singer Co.
64. Sperry Corp.
65. Sun Chemical Corp.
66. Sverdrup Technology, Inc.
67. TRW, Inc.
68. Talley Industries, Inc.
69. Tenneco, Inc.
70. Texas Instruments, Inc.
71. Todd Shipyards Corp.
72. United Industrial Corp.
73. United Technologies Corp.
74. Watkins-Johnson Co.
75. Westinghouse Electric Corp.
76. Williams International Corp.

Exhibit I-2

PROFIT '76 PARTICIPANTS ALSO PARTICIPATING IN DFAIR

1 Aerojet General Corp. (A)
2 Atlantic Research Corp.
3 Avco Corp.
4 Bendix Corp.(B)
5 Boeing Co., The
6 Bunker Ramo Corp.(C)
7 Chrysler Corp (H)
8 Colt Industries, Inc.
9 Cutler-Hammer (D)
10 E-Systems, Inc.
11 ESL, Inc. (I)
12 Emerson Electric Co.
13 Fairchild Industries, Inc.
14 GTE Sylvania
15 General Dynamics Corp.
16 Grumman Aerospace Corp.
17 Harris Corp.
18 Harsco Corp.
19 Hoffman Electronics (E)
20 Honeywell, Inc.
21 Hughes Aircraft Co.
22 IBM Corp.
23 ITEK Corporation (J)
24 ITT Corp.
25 Kaman Aerospace Corp.
26 LTV Corp.
27 Lear Siegler, Inc.
28 Litton Industries, Inc.
29 Lockheed Corp.
30 Magnavox Co. (F)
31 Martin Marietta Corp.
32 McDonnell Douglas Corp.
33 Menasco, Inc.(K)
34 Morton Thiokol, Inc.
35 Motorola, Inc.
36 Newport News Shpbld & Dry Dock
37 Norfolk Shipbuilding & Drydock Co.
38 Northrop Corp.
39 Rockwell International
40 Sanders Associates, Inc.
41 Singer Co.
42 Sperry Corp.
43 Summa Corp. (L)
44 TRW, Inc.
45 Talley Industries, Inc.
46 Texas Instruments, Inc.
47 United Technologies Corp.
48 Western Electric Co., Inc.(G)
49 Westinghouse Electric Corp.
50 Williams International Corp.

REPRESENTED BY NEW PARTICIPANTS

A Represented by General Tire and Rubber in DFAIR Study
B Represented by Allied Corp. in DFAIR Study
C Represented by Allied Corp. in DFAIR Study
D Represented by Eaton Corp. in DFAIR Study
E Represented by Gould Inc. in DFAIR Study
F Represented by North American Philips in DFAIR Study
G Represented by AT&T in DFAIR Study

REPRESENTED BY OLD PARTICIPANTS

H Represented by General Dynamics in DFAIR Study
I Represented by TRW in DFAIR Study
J Represented by Litton Industries in DFAIR Study
K Represented by Colt Industries in DFAIR Study
L Represented by McDonnell Douglas in DFAIR Study

NOTE:
The fifty (50) Profit '76 participants that are represented in the DFAIR study are represented by forty four (44) parent companies.

Exhibit I-3

Operating Profit to Total Assets
Compared to Adjusted Durable Goods 1/
(Assets not Reduced by Progress Payments)

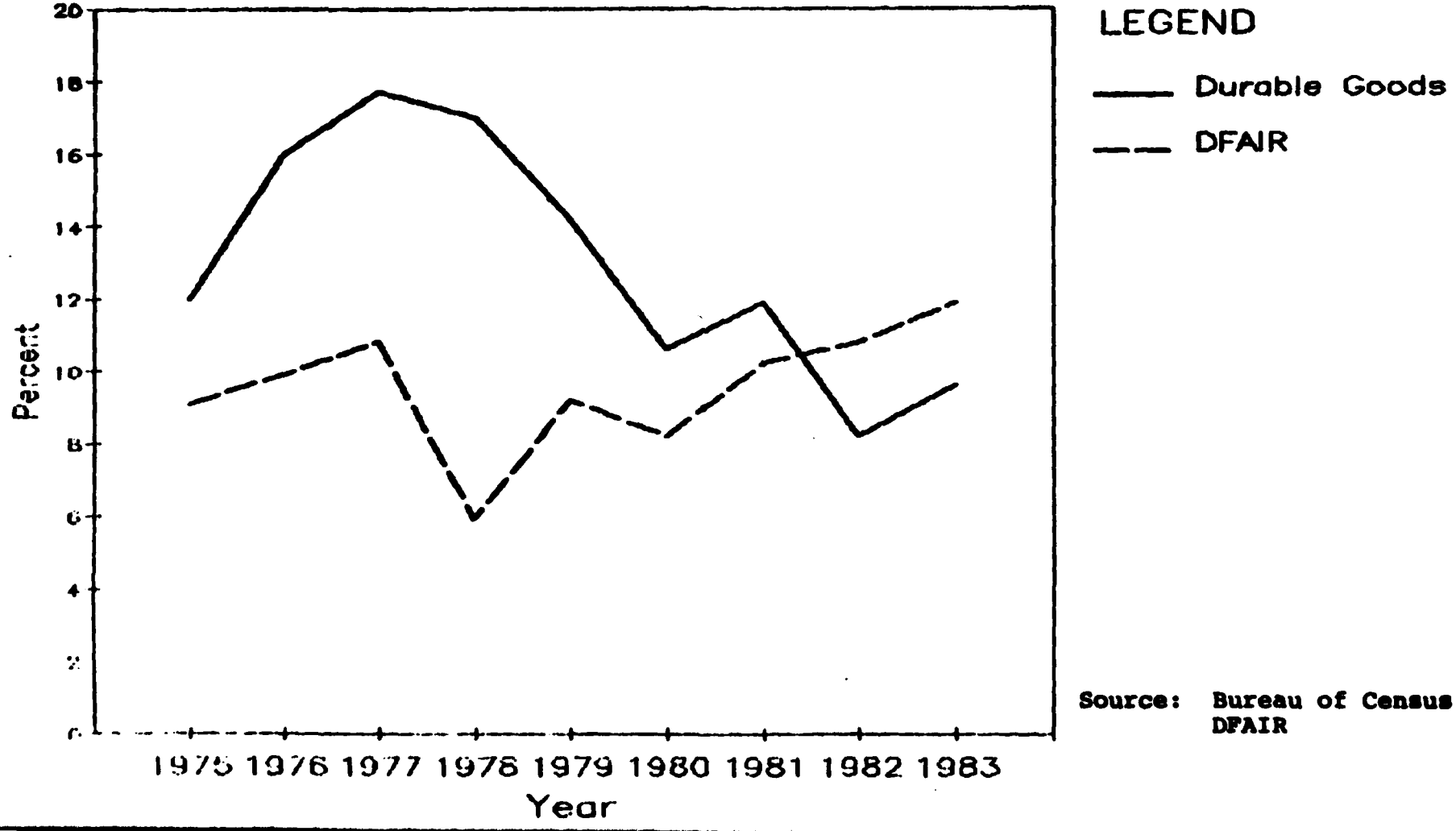
	1975	1976	1977	1978	1979	1980	1981	1982	1983	Nine Yr. Average
Durable Goods %	12.0	16.0	17.7	17.0	14.2	10.6	11.9	8.2	9.6	12.4
DFAIR %	9.1	9.9	10.8	5.9	9.2	8.2	10.2	10.8	11.9	10.0

Source: Bureau of Census
DFAIR

1/ The low value for DFAIR in 1978 is attributable to writeoffs taken by shipbuilders in 1978. This is discussed further in Section VI.

Exhibit I-4

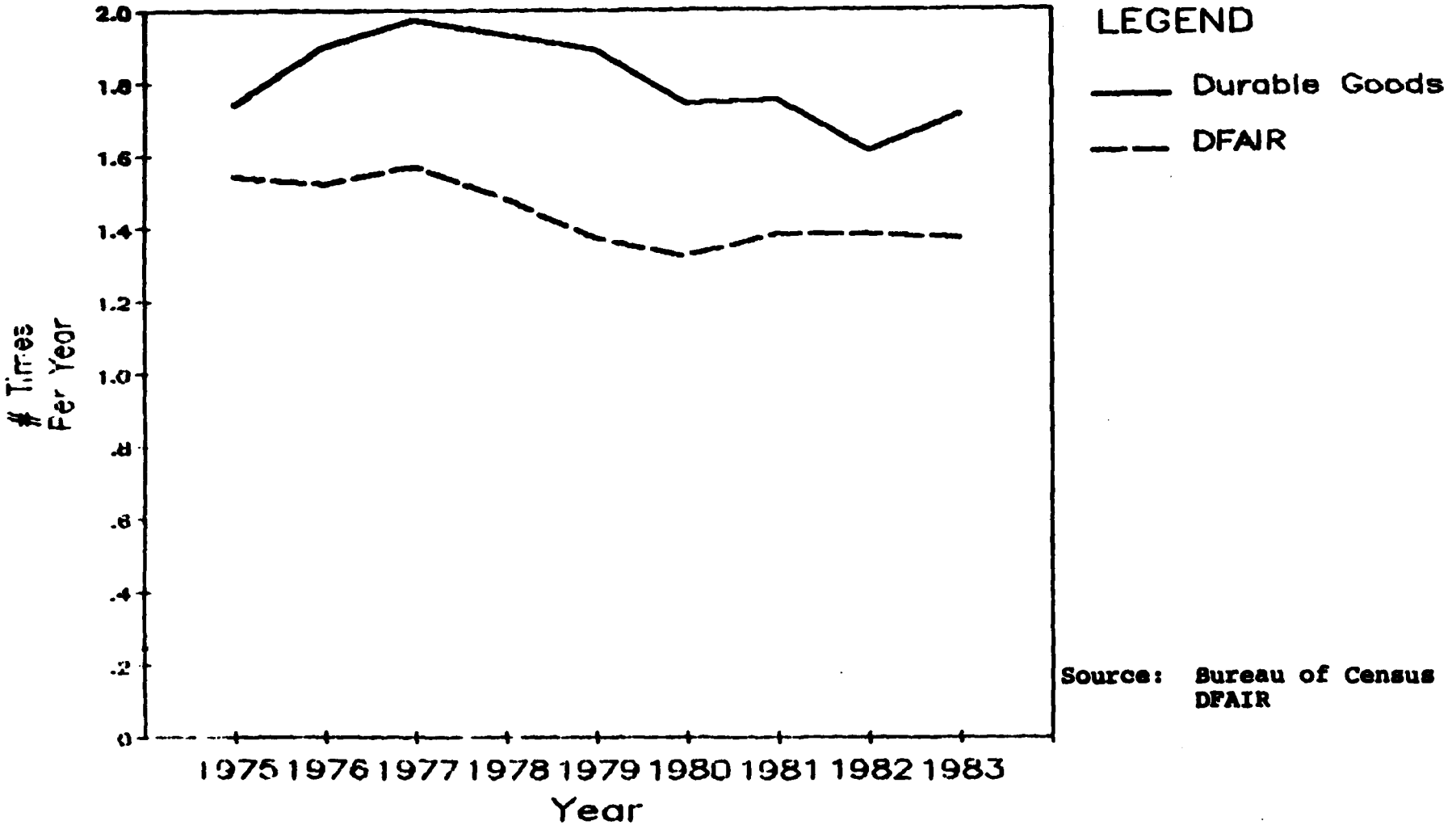
DFAIR STUDY
Operating Profit to Total Assets
Assets Not Reduced
By Progress Payments



Source: Bureau of Census
DFAIR

Exhibit I-5

DFAIR STUDY
Asset Turnover
Assets Not Reduced By Progress Payments
Summary



Source: Bureau of Census
DFAIR

Exhibit I-6

Operating Profit to Total Assets
(Assets Reduced by Progress Payments)

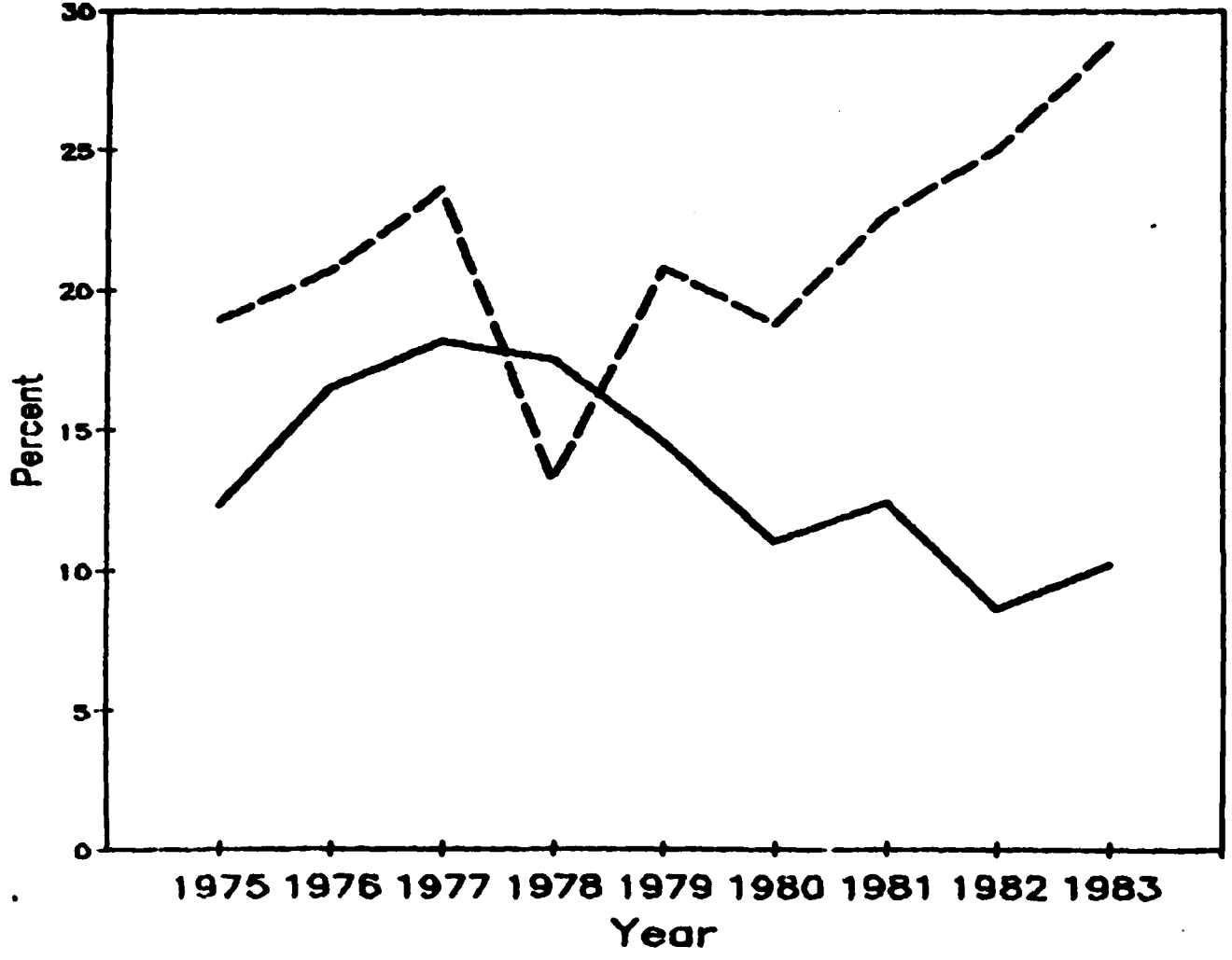
	1975	1976	1977	1978	1979	1980	1981	1982	1983	Nine Yr. Average
Durable Goods %	12.3	16.5	18.2	17.5	14.6	11.0	12.4	8.6	10.2	12.9
DFAIR %	18.9	20.7	23.6	13.2	20.8	18.8	22.7	25.0	28.8	22.6

Source: Bureau of Census
DFAIR

NOTE: The low value for DFAIR in 1978 is attributable to writeoffs taken by shipbuilders in 1978. This is discussed further in Section VI.

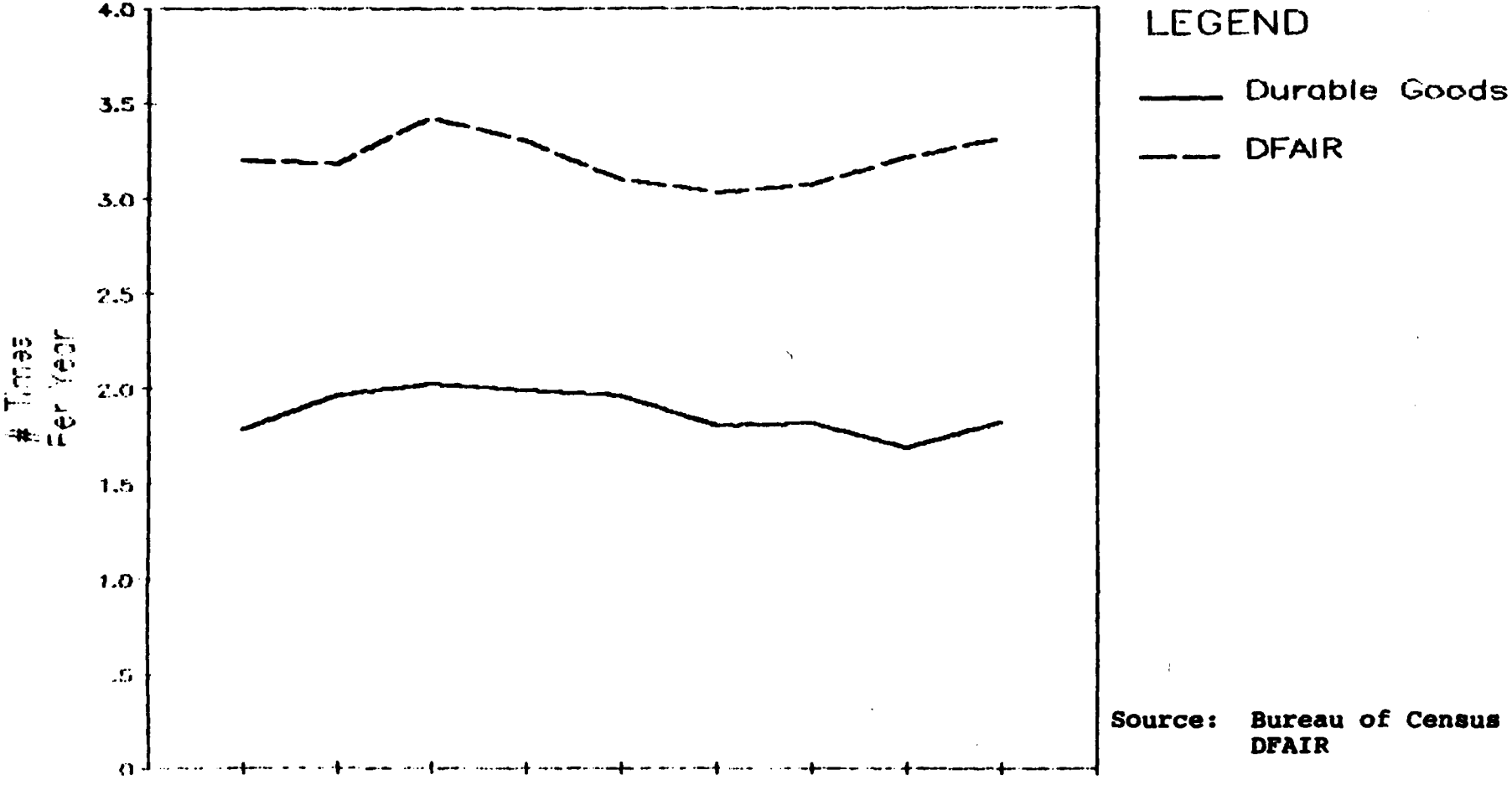
Exhibit I-7

DFAIR STUDY
Operating Profits to Total Assets
Assets Reduced
By Progress Payments



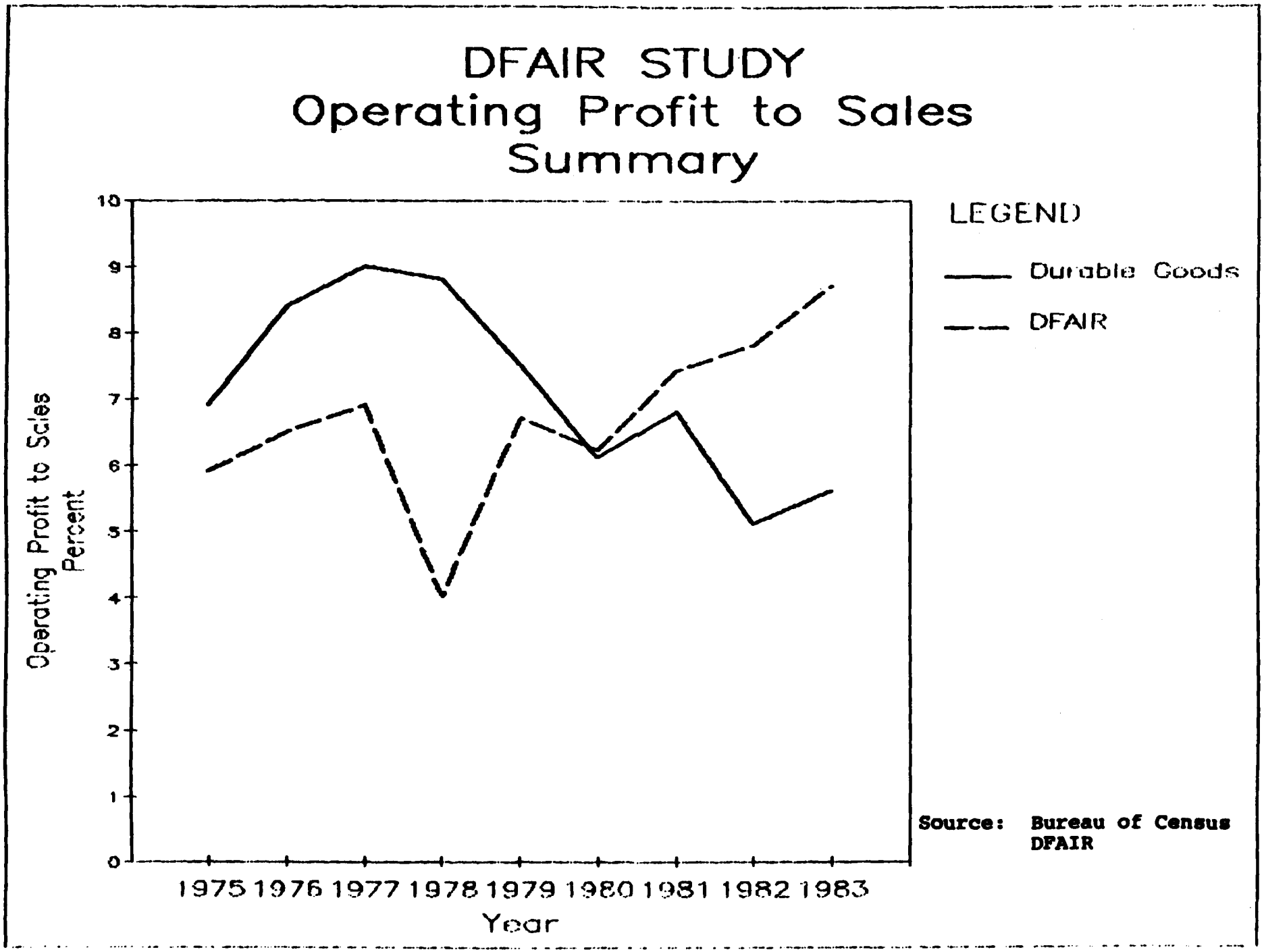
Source: Bureau of Census
DFAIR

DFAIR STUDY
Asset Turnover
Assets Reduced By Progress Payments
Summary



Source: Bureau of Census
DFAIR

Exhibit I-9


DFAIR STUDY
Operating Profit to Sales
Summary
LEGEND
Durable Goods
DFAIR
Operating Profit to Sales
Percent
0
1
2
3
4
5
6
7
8
9
10
1975 1976 1977 1978 1979 1980 1981 1982 1983
Year
Source: Bureau of Census
DFAIR

II. SURVEY ADMINISTRATION

A. BACKGROUND AND STUDY OBJECTIVES

On December 2, 1983, the Deputy Secretary of Defense initiated a major study of defense contract pricing, financing and profit policies, called the Defense Financial and Investment Review (DFAIR). The purpose of the study was to examine and evaluate Department of Defense (DOD) policies to insure that they result in equitable, efficient, and effective spending of public funds while maintaining the viability of the defense industrial base.

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C. OVERVIEW OF DATA COLLECTION PROCESS

A data collection package was sent to contractors selected to participate in the survey. The contractors' completed schedules were forwarded to the contractors' outside certified public accountants (CPAs) who reviewed the data in relation to the definitions and instructions contained in the survey instrument. After the CPA review, completed schedules were forwarded to Touche Ross. The key project dates and milestones for the DFAIR Survey are provided in Exhibit II-1. Appendix IV provides the results of the interviews we conducted as part of this project.

D. DATA COLLECTION PACKAGE DESIGN

1. Design Process

Touche Ross assisted the DFAIR study group to design the data collection package to be used to gather financial data for the DFAIR study. The design of the data collection package was based on:

a. Assessment of the major DOD procurement policy issues and the data required to address these issues;

b. Review of data available from "Profit '76" including: data collection package, working papers, interim reports and presentations, and the final report;

c. Review of the analyses performed in "Profit '76";

d. Identification of additional analyses that should be considered in order to address the various study issues; and

e. Analysis of the annual reports and Form 10-K of 34 contractors proposed for the study; the analyses focused on the magnitude and materiality of selected asset and liability items to decide on the inclusion or omission of selected balance sheet items in the data collection form.

2. Testing of the Data Collection Package

Different accounting and reporting practices exist among defense contractors. To ensure that comparable and consistent data were collected, the data collection package was tested on seven defense contractors. The purpose of the test was to identify areas where the instructions or definitions needed clarification. The test also provided information on what data are readily available and the respondent burden associated with providing the requested data.

The characteristics of the survey population were reviewed and used as the basis for selecting contractors for the test. These characteristics included contractor size, industry, number of segments, and complexity of intra- and inter-segment activities. This gave assurance that: (a) the contractors selected for the test would have characteristics that closely resembled the survey population and (b) the findings related to the test would be generally applicable to the survey population.

Seven contractors participated in the test survey. Touche Ross and members of the DFAIR study group met with each contractor and reviewed the data collection package on a line-by-line basis. The contractors were also requested to complete the data schedules to further assist in identifying issues relating to the schedules. Through these discussions the project team was able to gain a better understanding of the contractors' accounting systems and their ability to provide the requested data. Suggestions for improving the package were identified and incorporated into the package. The end result of the design and test activities was a data collection package designed to collect consistent and accurate data from a diverse contractor population.

E. DATA COLLECTION PROCESS

1. Identification of Contractors

The parameters used by DFAIR to identify defense contractors to participate in the survey included:

a. "Profit '76" participants;

b. Parent and subsidiary companies;

c. Size of companies or DOD contracts;

d. Industry representation;

e. Coverage of DOD procurement budget; and

f. Representativeness of product line as compared to the DOD procurement budget.

The following tasks were undertaken to identify and target participants for the study:

a. Review contractors proposed for the DFAIR study to ensure they were representative of the current defense contractor base and the goods and services being purchased;

b. Review of mergers and acquisitions for the "Profit '76" participants;

c. Reconciliation of participants in the "Profit '76" study with contractors proposed for the DFAIR survey.

Subsequent to these activities, 126 defense contractors were selected for survey participation. The 126 included all those contractors who participated in the "Profit '76" survey. Exhibit II-2 lists the 126 contractors selected for participation in the DFAIR survey.

2. Data Collection Package Mailing

Office of Management Budget approval for the data collection package was obtained on September 28, 1984. The data collection package was mailed to each of the 126 respondents on October 3, 1984 using next day delivery service. Telephone calls were made to each of the 126 respondents to ensure receipt of the package.

3. Survey Workshop

On October 11, 1984, Touche Ross and the DFAIR study group sponsored a contractor workshop to provide a forum for questions and survey related discussions. Forty-three (43) contractors were represented at the workshop. The following changes resulted from the workshop:

a. Extension of reporting deadlines;

b. Authorization to round reported values to the nearest one hundred thousand rather than to the nearest million; and

c. Addition of a general and administrative (G&A) expense component to reported ending inventory.

4. Ongoing Assistance to Contractors

Touche Ross provided daily support to contractors as they compiled data for completing the data collection schedules. The respondents' inquiries related to issues of confidentiality, deadlines, and treatment of unique accounting issues.

II. SURVEY ADMINISTRATION EXHIBITS

Exhibit II-1

PROJECT SCHEDULE

Date	Milestone
1984	
Jul., Aug.	Data collection package tested
Aug. 22 - 24	Council of Defense and Space Industry Association and Advisory Group comments about data collection package reviewed
Aug. 24	Data collection package finalized
Sept. 28	OMB approval obtained
Oct. 1	Data collection package mailed to defense contractors
Nov. 22	Deadline for receipt of data from contractors reporting 1 segment
Dec. 1	Deadline for receipt of data from contractors reporting 2-3 segments
Dec. 10	Deadline for receipt of data from contractors reporting 4-5 segments
1985	
Jan. 15	Extended deadline*
Feb. 18	Interim report delivered
Mar. 15	Draft final report delivered
Apr. 24	Final report delivered

* Due to the delays in obtaining the data from contractors, DFAIR extended the deadline to January 15, 1985.

Exhibit II-2

DFAIR SURVEY POPULATION

1. AEL Industries, Inc.
2. AT&T
3. Aeronautical Radio, Inc.
4. Allied Corp.
5. Atlantic Research Corp.
6. Arvin Industries
7. Avco Corp.
8. B.F. Goodrich Co., The
9. BDM International, Inc.
10. Boeing Co., The
11. Brunswick Corp.
12. Bucyrus-Erie Co.
13. Burroughs Corp.
14. CACI
15. CCI Corp.
16. California Microwave, Inc.
17. Chromalloy American Corp.
18. Cincinnati Electronics Corp.
19. City Investing
20. Colt Industries, Inc.
21. Computer Sciences Corp.
22. Congoleum Corp.
23. Conrac Corp.
24. Control Data Corp.
25. Cubic Corp.
26. Curtiss-Wright Corp.
27. Dynalectron Corp.
28. E-Systems, Inc.
29. E.I. DuPont de Nemours and Co., Inc.
30. EG&G, Inc.
31. Eastman Kodak Co.
32. Eaton Corp.
33. Edo Corp.
34. Electrospace Systems
35. Emerson Electric Co.
36. FMC Corp.
37. Fairchild Industries, Inc.
38. Figgie International, Inc.
39. Flow General Corp.
40. Ford Motor Co.
41. GTE Corp.
42. General Dynamics Corp.
43. General Electric Co.
44. General Motors Corp.
45. General Tire and Rubber Co., The
46. Goodyear Tire & Rubber Co., The
47. Gould, Inc.
48. Grumman Corp.
49. HMW Industries
50. Harris Corp.

Exhibit II-2
(continued)

51. Harsco Corp.
52. Hazeltine Corp.
53. Hercules, Inc.
54. Honeywell, Inc.
55. Hughes Aircraft Co.
56. IBM Corp.
57. ICI Americas, Inc.
58. ITT Corp.
59. International Controls Corp.
60. Kaiser Aerospace and Electronics Co.
61. Kaman Corp.
62. Kentron International
63. LTV Corp.
65. Lear Siegler, Inc.
66. Litton Industries, Inc.
67. Lockheed Corp.
68. Loews Corp.
69. Logicon, Inc.
70. Loral Corp.
71. Management & Technical Services
72. Maremont Corp.
73. Martin Marietta Corp.
74. McDonnell Douglas Corp.
75. Mine Safety Appliances Co.
76. Morrison Knudsen Co., Inc.
77. Morton Thiokol, Inc.
78. Motorola, Inc.
79. NI Industries, Inc.
80. Norfolk Shipbuilding & Drydock Co.
81. North American Philips Corp.
82. Northrop Corp.
83. Ogden Corp.
84. Olin Corp.
85. Paccar, Inc.
86. Pan American World Services, Inc.
87. Parker Hannifin Corp.
88. Penn Central Corp.
89. Perkin-Elmer Corp.
90. Peterson Builders, Inc.
91. Planning Research Corp.
92. Pneumo Corp.
93. RCA Corp.
94. Raytheon Co.
95. Rockwell International
96. Rohr Industries, Inc.
97. Sanders Associates, Inc.
98. Schlumberger, Ltd.
99. Science Applications
100. Signal Companies, Inc., The

Exhibit II-2
(continued)

101. Singer Co.
102. Sparton Corp.
103. Sperry Corp.
104. Sun Chemical Corp.
105. Sundstrand Corp.
106. Sverdrup Technology, Inc.
107. TRW, Inc.
108. Talley Industries, Inc.
109. Teledyne, Inc.
110. Tenneco, Inc.
111. Texas Instruments, Inc.
112. Textron, Inc.
113. Todd Shipyards Corp.
114. Tracor, Inc.
115. Transamerica Corp.
116. Tyco Laboratories, Inc.
117. UMC Industries, Inc.
118. United Industrial Corp.
119. United Technologies Corp.
120. Varian Associates, Inc.
121. Watkins-Johnson Co.
122. Westinghouse Electirc Corp.
123. Whitehall Corp.
124. Whittaker Corp.
125. Williams International Corp.
126. Xerox Corp.

III. DATA CONFIDENTIALITY

Touche Ross implemented several procedures to ensure the confidentiality of contractor data submitted for the survey. These procedures are briefly described below.

A. ASSIGNMENT OF CONTRACTOR IDENTIFICATION NUMBER

1. Touche Ross assigned a unique four-character identification number to each contractor in the survey population. Three of the four characters were preassigned for each contractor. The last character identified each segment and was assigned sequentially by the respondent when completing the survey. Contractors were requested to mail in their identificaton form prior to submission of the data. The instructions requested that the data be mailed using only the unique identifier and not the contractor's name.

2. Touche Ross maintained a master list of contractor names and assigned identification numbers. Access to the master list was restricted to authorized Touche Ross personnel. The master list was destroyed at the completion of the project.

B. RECEIPT OF FORMS AND DATA ENTRY

1. Contractors were instructed to send completed survey forms to Touche Ross.

2. Upon receipt of completed forms, Touche Ross entered the data and contractor identification numbers into a computer database.

C. ANALYSIS OF SUBMITTED DATA

1. As part of the data verification process, only Touche Ross performed edit and reasonableness checks on all data received. When required, only Touche Ross contacted the contractor to gain an understanding of the data and to resolve any questions.

2. To maintain the confidentiality of contractors' data only aggregate results were disclosed. Furthermore, Touche Ross analyzed the aggregate data to ensure that no single contractor segment data can be ascertained from the aggregate product type. Only the product type category which reflected the following characteristics were disclosed on an aggregate basis:

   a. At least four contractors were included within the product type category; and

   b. No single contractor represented 40% or more of total for the product type category.

   Analyses of the data showed that product codes 4,5 and 6 did not meet the two conditions described above. Consequently, the data for these product codes were aggregated and reported as product code 5.

D. DATA STORAGE AND HANDLING

Raw data was stored in a locked, limited access storage area maintained by Touche Ross. During the analysis period, the raw data was maintained in separate files by assigned contractor identification number. Upon completion of the analysis, the raw data was returned to the contractors. All information that could be used to identify the participating contractors were removed from the files at the completion of the project.

IV. QUALITY CONTROL PROCEDURES

A. CERTIFIED PUBLIC ACCOUNTANT REVIEW

In order to achieve an acceptable level of assurance that the submitted data are reflective of the contractors financial operations, submissions had to be accompanied by a report of the contractor's CPA. The CPA report stated that based on the procedures they applied, they became aware of no information that would cause them to believe that any material adjustments were required to the information submitted by the contractor. For those contractors included in the analysis, the CPA reports received were without any qualifications or exceptions.

The recommended review program for the contractor's outside accountants and their review letter are provided in Attachments III and IV, respectively, in the data collection package in Appendix V.

B. DATA EDITING AND VALIDATION

The data submitted for inclusion into the survey were subjected to a series of manual and automated edit and review procedures. Any inconsistencies and questions were resolved with the contractor and the contractor's CPA before the data were incorporated into the final database. Appendix II provides the detailed procedures for both the manual and automated edit and review processes performed by Touche Ross.

C. FOLLOW-UP PROCEDURES

To resolve questions that were identified during the edit process, Touche Ross contacted the contractor and the contractor's CPAs to resolve all issues. Explanations and corrections were reviewed, and the appropriate adjustments were made to the data. Corrections and explanations were documented and verified with the contractor and CPA.

V. DATA BASE DESCRIPTION

A. CONTRACTORS

The contractors were chosen by DFAIR from a list generated from a Department of Defense data base. The data base consists of information from Form DD350, which is generated by Contracting Officers for all DOD contracts over $25,000. The survey population was drawn from this source with the following criteria:

1. Negotiated contracts only;

2. Awards to large profit oriented firms;

3. No catalogue or market priced items; and

4. Awards over $100,000.

From this list, 126 contractors were selected by DFAIR. This "population" of contractors was then analyzed for two characteristics:

1. Procurement action dollars relative to DOD procurement to insure adequate overall coverage; and

2. Procurement program mix relative to DOD programs to insure coverage of all the programs relevant to this study.

A discussion of data coverage follows. Detailed analyses and graphic presentations are included in Appendix I.

Total Survey Population. The survey population of 126 contractors and subsidiaries was matched by commodity, for each of the last four years of the survey (1980 - 1983) and in total, to the DOD negotiated contract actions for the four years. Appendix I provides a year-by-year comparison of the 126 contractors to the total prime contracts awards. Exhibit V-1 shows a survey population coverage in excess of 71% for each year. The survey population represented 76% of 1983 contracts which were not susceptible to having their prices set by the market place and an average coverage of 74% for the period 1980-1983 in the commodities being surveyed. This coverage is divided between "Profit '76" participants and new participants as shown on Exhibit V-2.

The survey population of 126 contractors accounted for a major part of the DOD contract actions and these contractors were also representative of the major commodities that DOD procures through negotiated contracts. Exhibit V-3 shows that the survey population accounted for a major portion of the commodities of interest to DFAIR during the four year period 1980 through 1983.

DFAIR Participants. Data from 76 companies of the 126 in the survey population were used in the analyses*. Exhibit V-4 lists the 76 participants whose data were used in the analysis. In 1983, these 76 contractors reported on a total of 194 segments. Exhibit V-5 shows that these 76 contractors represent 92% of the contract dollars awarded to the survey population during the four year period 1980 through 1983.

In the "Profit '76" study, data were obtained from 64 contractors. Of these 64 contactors, 50 also participated in the DFAIR study. Exhibit V-6 identifies the "Profit '76" participants who participated in the DFAIR study.

The survey participants also represent a major proportion of the total DOD negotiated contract actions during the same period. Exhibits V-7 and V-8 show that the 76 DFAIR participants represented about 68% of the total. The 76 respondents are also representative of the major commodities purchased by DOD during the period. Exhibit V-9 also shows that respondents who had also participated in the "Profit '76" study account for approximately 49% of DOD procurement.

B. COMPARISON DATA

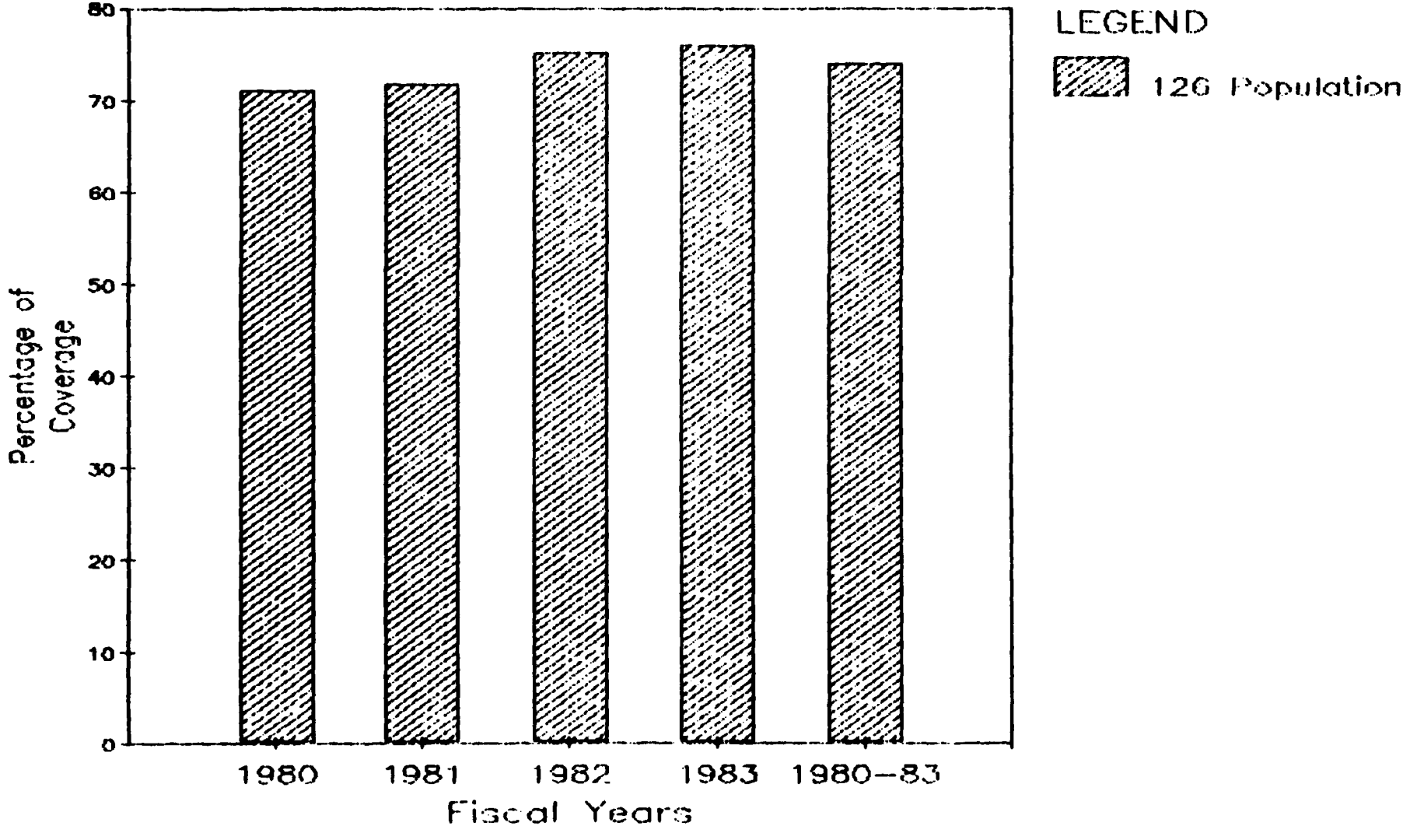
One of the considerations for this study was to assess the relative performance of defense business with commercial business. The primary data source for this comparison was the U.S. Department of Commerce, Bureau of the Census, Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations. This is the same source that was used in "Profit '76". A detailed description of this data is in Appendix IV.

* Data were submitted by 80 contractors of which four responses were not usable for the following reasons:

- Absence of CPA review (three responses)
- Failure to separately identify DOD data (one response).

V. DATA BASE DESCRIPTION EXHIBITS

DFAIR STUDY
Percentage of Total DOD Procurement By 126 Survey Population



Source: Directorate for Information Operations and Reports (DIOR)

Exhibit V-2

COVERAGE OF DFAIR SURVEY POPULATION
($ MILLION)

	Number	1980-1983 Contract Awards	Percent of DOD Contracts**
"Profit '76" Contractors	56*	$165,759	58%
Additional Contractors	70	45,167	16%
Total	126	$210,926	74%

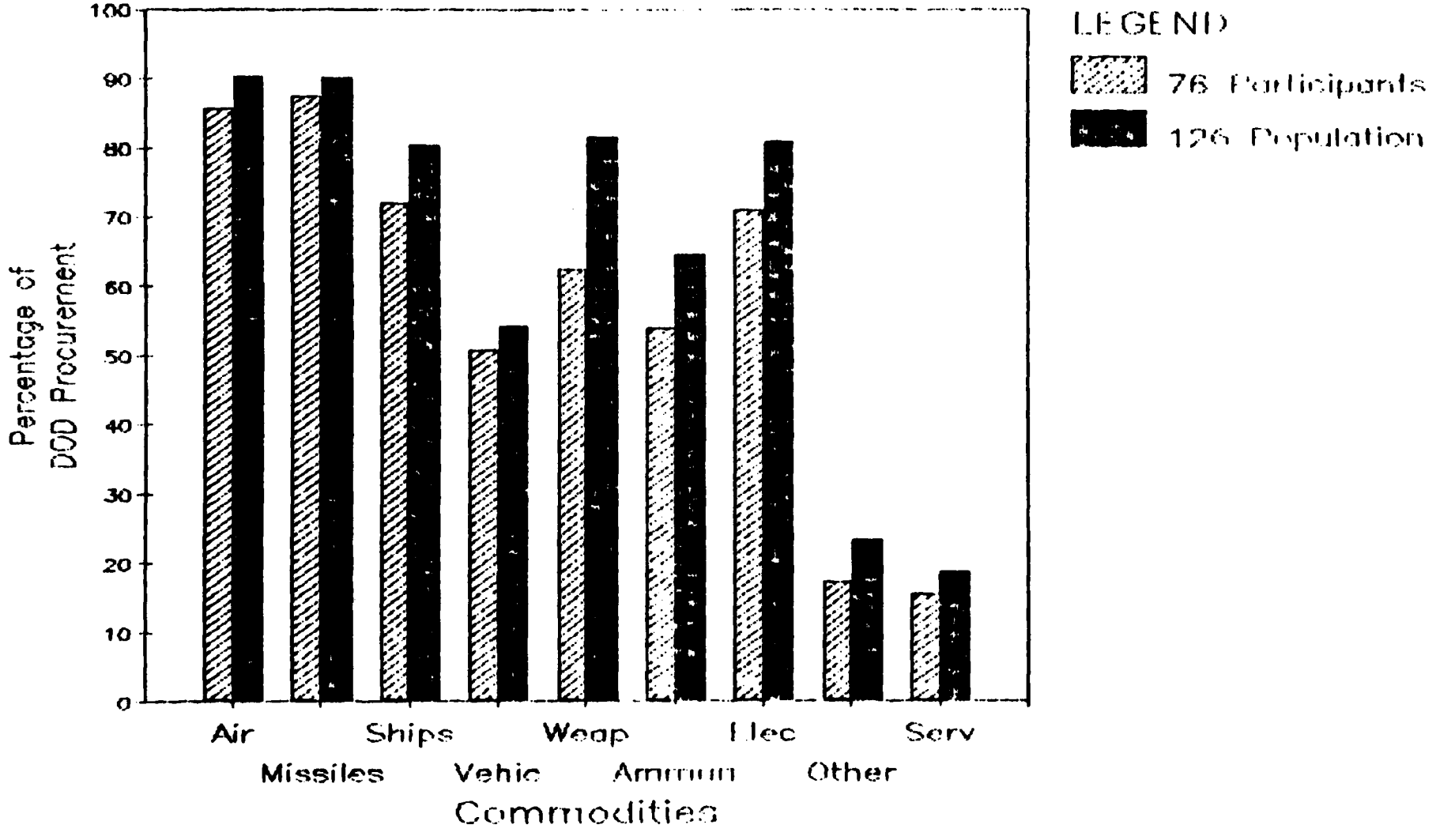
Source: Directorate For Information Operations and Reports (DIOR)

* Of the 64 contractors who participated in "Profit '76", 62 were selected to participate in the DFAIR study. Due to mergers and acquisitions since 1974 the 62 contractors are now accounted for by 56 contractors.

** Total DOD contracts which were not susceptible to having their prices set by the market place during 1980-1983 equals $285 billion.

Exhibit V-3

DFAIR SURVEY
Coverage of DFAIR Survey By Commodity
1980 — 1983 Cumulative



Source: Directorate for Information Operations and Reports (DIOR)

Exhibit V-4

DFAIR PARTICIPANTS

1. AEL Industries, Inc.
2. AT&T
3. Aeronautical Radio, Inc.
4. Allied Corp.
5. Arvin Industries
6. Atlantic Research Corp.
7. Avco Corp.
8. BDM International, Inc.
9. Boeing Co., The
10. CACI
11. Cincinnati Electronics
12. Colt Industries, Inc.
13. Computer Sciences Corp.
14. Control Data Corp.
15. E-Systems, Inc.
16. EG&G, Inc.
17. Eaton Corp.
18. Edo Corp.
19. Emerson Electric Co.
20. FMC Corp.
21. Fairchild Industries, Inc.
22. Figgie International, Inc.
23. Flow General Corp.
24. GTE Corp.
25. General Dynamics Corp.
26. General Electric Co.
27. General Motors Corp.
28. General Tire and Rubber Co., The
29. Goodyear Tire & Rubber Co. The
30. Gould, Inc.
31. Grumman Corp.
32. Harris Corp.
33. Harsco Corp.
34. Hazeltine Corp.
35. Hercules, Inc.
36. Honeywell, Inc.
37. Hughes Aircraft Co.
38. IBM Corp.
39. ICI Americas, Inc.
40. ITT Corp.
41. Kaman Corp.
42. LTV Corp.
43. Lear Siegler, Inc.
44. Litton Industries, Inc.
45. Lockheed Corp.
46. Logicon, Inc.
47. Martin Marietta Corp.
48. McDonnell Douglas Corp.
49. Mine Safety Appliances Co.
50. Morrison Knudsen Co., Inc.
51. Morton Thiokol, Inc.
52. Motorola, Inc.
53. NI Industries
54. Norfolk Shipbuilding & Drydock Co.
55. North American Philips Corp.
56. Northrop Corp.
57. Pan American World Services, Inc.
58. Penn Central Corp.
59. RCA Corp.
60. Raytheon Co.
61. Rockwell International
62. Sanders Associates, Inc.
63. Singer Co.
64. Sperry Corp.
65. Sun Chemical Corp.
66. Sverdrup Technology, Inc.
67. TRW, Inc.
68. Talley Industries, Inc.
69. Tenneco, Inc.
70. Texas Instruments, Inc.
71. Todd Shipyards Corp.
72. United Industrial Corp.
73. United Technologies Corp.
74. Watkins-Johnson Co.
75. Westinghouse Electric Corp.
76. Williams International Corp.

Exhibit V-5

COVERAGE OF DFAIR PARTICIPANTS TO SURVEY POPULATION
($ MILLIONS)

	Number	Contract Dollars Awarded	Percent of Contract Dollars Responding to Survey
Survey Participants	76	$193,219	92%
Survey Population	126	$210,926	

Source: Directorate for Information Operations and Reports (DIOR)

Exhibit V-6

PROFIT '76 PARTICIPANTS ALSO PARTICIPATING IN DFAIR

1	Aerojet General Corp. (A)	26	LTV Corp.
2	Atlantic Research Corp.	27	Lear Siegler, Inc.
3	Avco Corp.	28	Litton Industries, Inc.
4	Bendix Corp.(B)	29	Lockheed Corp.
5	Boeing Co., The	30	Magnavox Co. (F)
6	Bunker Ramo Corp.(C)	31	Martin Marietta Corp.
7	Chrysler Corp (H)	32	McDonnell Douglas Corp.
8	Colt Industries, Inc.	33	Menasco, Inc.(K)
9	Cutler-Hammer (D)	34	Morton Thiokol, Inc.
10	E-Systems, Inc.	35	Motorola, Inc.
11	ESL, Inc. (I)	36	Newport News Shpbld & Dry Dock
12	Emerson Electric Co.	37	Norfolk Shipbuilding & Drydock Co.
13	Fairchild Industries, Inc.	38	Northrop Corp.
14	GTE Sylvania	39	Rockwell International
15	General Dynamics Corp.	40	Sanders Associates, Inc.
16	Grumman Aerospace Corp.	41	Singer Co.
17	Harris Corp.	42	Sperry Corp.
18	Harsco Corp.	43	Summa Corp. (L)
19	Hoffman Electronics (E)	44	TRW, Inc.
20	Honeywell, Inc.	45	Talley Industries, Inc.
21	Hughes Aircraft Co.	46	Texas Instruments, Inc.
22	IBM Corp.	47	United Technologies Corp.
23	ITEK Corporation (J)	48	Western Electric Co., Inc.(G)
24	ITT Corp.	49	Westinghouse Electric Corp.
25	Kaman Aerospace Corp.	50	Williams International Corp.

REPRESENTED BY NEW PARTICIPANTS

A	Represented by General Tire and Rubber in DFAIR Study
B	Represented by Allied Corp. in DFAIR Study
C	Represented by Allied Corp. in DFAIR Study
D	Represented by Eaton Corp. in DFAIR Study
E	Represented by Gould Inc. in DFAIR Study
F	Represented by North American Philips in DFAIR Study
G	Represented by AT&T in DFAIR Study

REPRESENTED BY OLD PARTICIPANTS

H	Represented by General Dynamics in DFAIR Study
I	Represented by TRW in DFAIR Study
J	Represented by Litton Industries in DFAIR Study
K	Represented by Colt Industries in DFAIR Study
L	Represented by McDonnell Douglas in DFAIR Study

NOTE:
The fifty (50) Profit '76 participants that are represented in the DFAIR study are represented by forty four (44) parent companies.

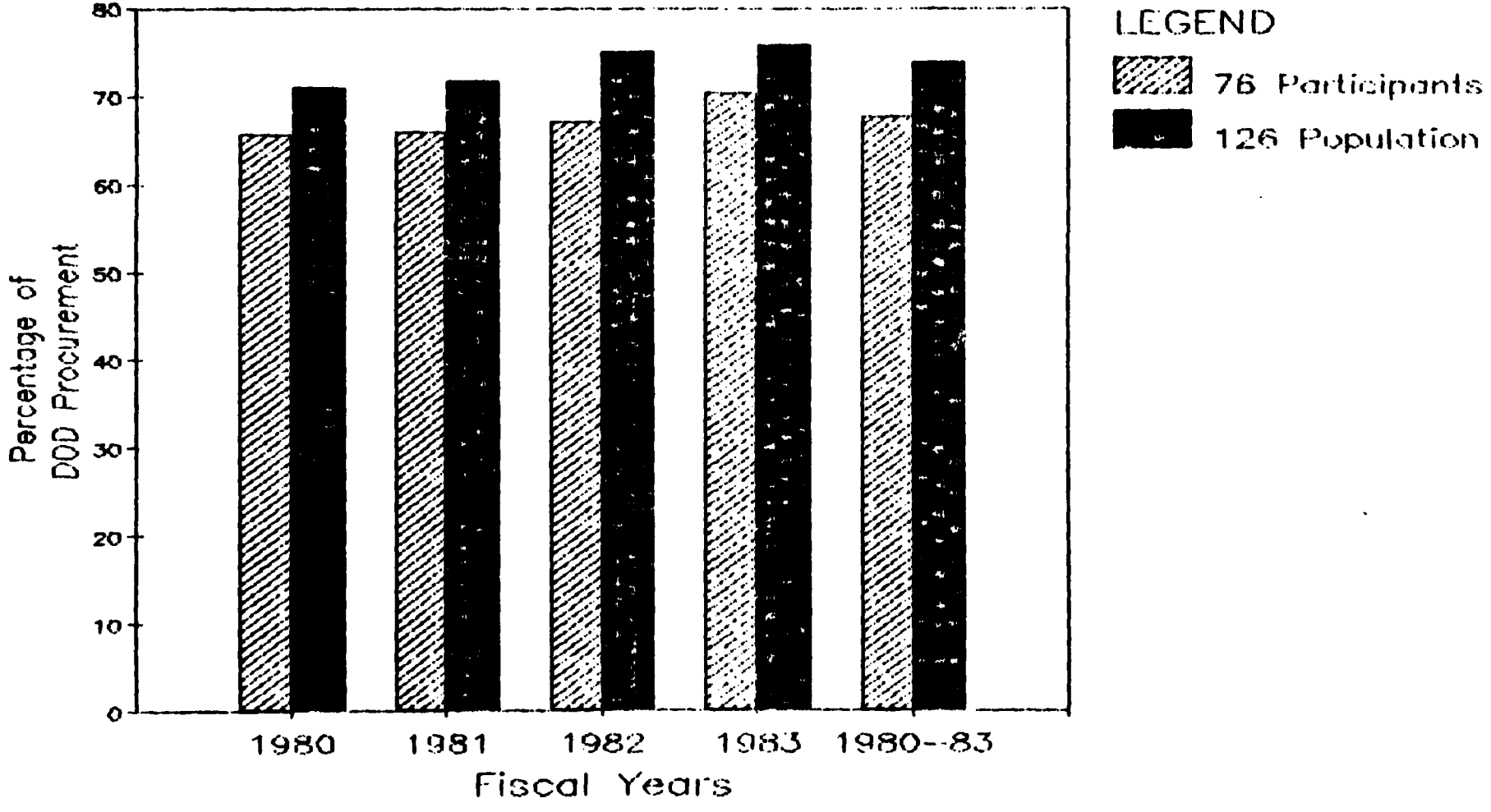
Exhibit V-7

COVERAGE OF DFAIR PARTICIPANTS TO DOD
($ MILLION)

	Number	1980-1983 Contract Awards	Percent of DOD Contracts
"Profit '76" Contractors	44	$138,557	49%
Additional Contractors	32	54,662	19%
Total	76	$193,219	68%

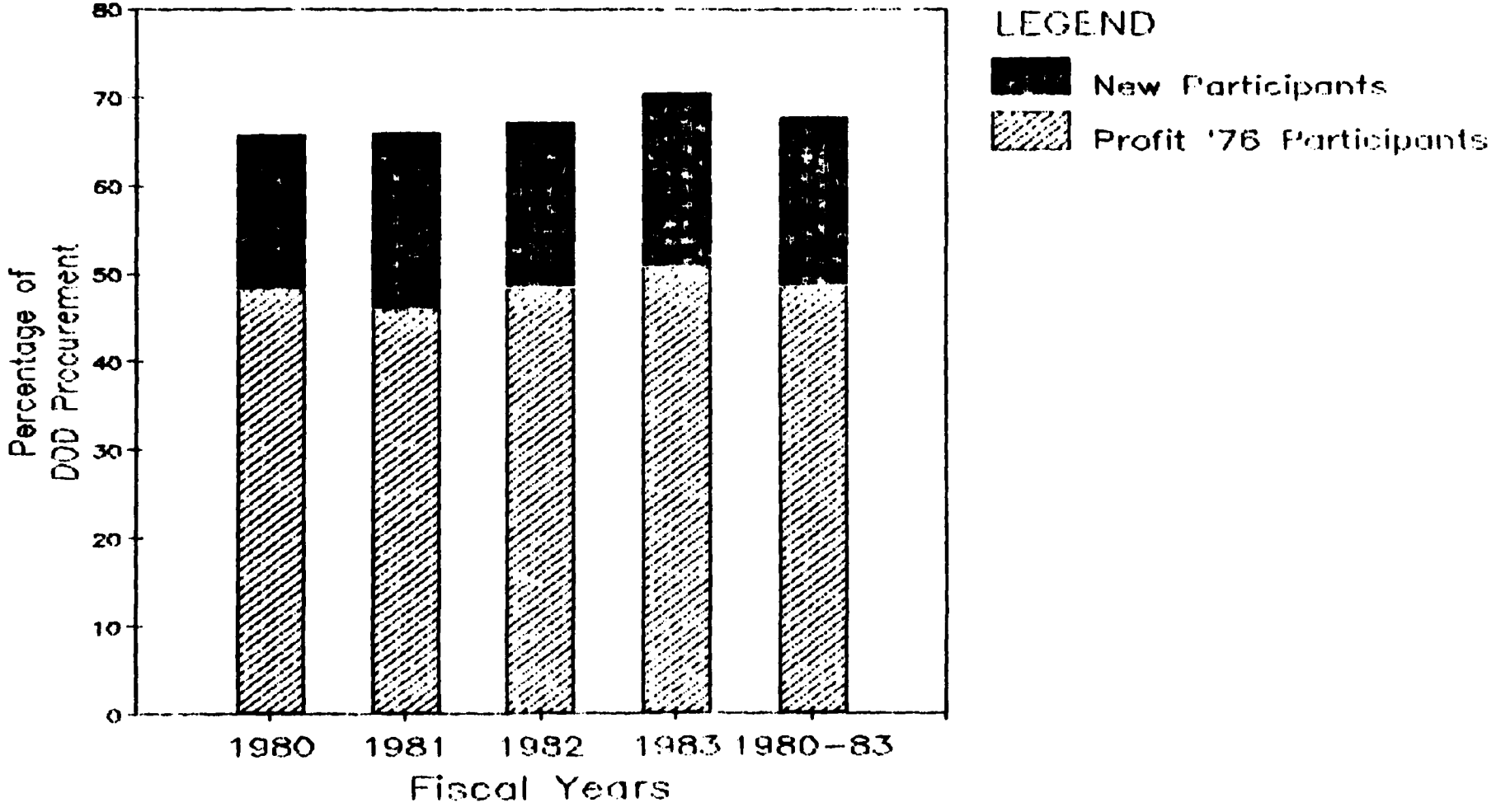
Source: Directorate for Information Operations and Reports (DIOR)

DFAIR STUDY
Percentage of Total Procurement By 76 Participants and 126 Survey Population



Source: Directorate for Information Operations and Reports (DIOR)

DFAIR STUDY
DFAIR Participants Coverage of DOD Procurement Profit '76 and New Participants



Source: Directorate for Information Operations and Reports (DIOR)

VI. SURVEY ANALYSES

This section provides results of analyses performed using the DFAIR survey data. The objectives of the analyses were to obtain information to address two major areas:

1. How does the financial performance of the defense business compare to the financial performance of the commercial business?

2. What impact did DOD procurement policies have on defense contractors?

Given the diversity of the reporting contractors and the complexity of the issues to be addressed, there is no single ratio or analysis that defines financial performance of the companies. We performed a series of analyses that provided a range of results which generally describes the financial performance of the DFAIR participants.

The analyses we performed were selected based on DFAIR survey data and on the following considerations:

1. Provide information required to address the major questions relating to DOD policies as stated above.

2. Provide results that could be compared to external databases. The two external data sources used for comparative analysis were:

   a. Quarterly Financial Reports, Bureau of the Census
   b. Annual Survey of Manufacturers, Bureau of the Census

The external data to which the DFAIR results are compared have been adjusted to eliminate the Primary Metals, Stone, Clay, and Glass Products, and Other SIC Codes. These categories represent industries for which no comparable DFAIR Product Type could be identified.

The analyses performed on an aggregate basis excluded the segments who reported "services" as the primary product produced at the segment. This makes the aggregrate DFAIR data more comparable to the Bureau of Census data which does not include services.

The analyses performed on the DFAIR data used either the DOD or total segment related data. The data on other U.S. Government and Commercial business within the segment was collected solely for the purpose of reconciliation in with the companies' books and records.

The major changes in DOD policies which could have affected contractor's financial performance are described on the following pages:

A. CAS 414

Overview

CAS 414 was published in June, 1976 and became effective on October 1, 1976. CAS 414 allowed contractors to claim, as a cost, imputed interest on facilities capital. The imputed interest rate is intended to be the equivalent to a five year bond rate for the lowest risk commercial company.

Purpose of Policy/Change

CAS 414 was implemented to provide explicit recognition of the cost of facilities capital and to eliminate disincentives in costing policies which may have hampered investment in facilities. The objective was that, as contractors invest more in defense assets, labor costs would decrease and ultimately result in lower costs for DOD procurements.

Expected Results of Changes

Expected results from CAS 414 would be increases in investment in fixed assets by DOD contractors beginning in 1977.

B. WEIGHTED GUIDELINES

Overview

Weighted guidelines were implemented to allow a reasonable profit on various elements of a DOD contract. The elements recognize risk and the skills and resources required to perform the contract.

Purpose of Changes

Weighted guidelines were revised when CAS 414 was issued. The changes was not intended to have an impact on overall DOD contractor profitability, but to redistribute the profit components to increase the incentive for contractors to invest in fixed assets. The weighted guidelines were changed again in 1980 as a result of there being no noticeable increase in contractor investment in facilities capital. This change increased the weights for contractor investment in facilities capital to 16-20% in manufacturing and deleted the weights in R&D and Service contracts.

Expected Results of Changes

Expected results would be increases in DOD contractors investments in fixed assets starting about 1980.

C. PROGRESS PAYMENTS

Overview

Progress payments are made to defense contractors during the course of a contract. Progress payments are used as a way to finance contractors investment in inventory and unbilled receivables through completion of the project.

Purpose of Changes

Progress payments have been changed several times since the early 1970's. In the mid 1970s, progress payments were about 80% for large contractors and 85% for small contractors. Two major changes took place in recent years. In March of 1981 progress payments were increased by 5% and in September of 1981 progress payments were increased by another 5%. In 1981, the frequency of progress billings was reduced from twice a month to once a month. Now, progress payments are 90% for large and 95% for small contractors. The changes were made primarily to account for the higher interest rates during the period.

Expected Results of Changes

These changes were expected to result in an increase in outstanding progress payment balances and a corresponding reduction in net current assets. Therefore, there would be some increase in the return on assets ratio.

D. COMPARISON OF DEFENSE CONTRACTORS' FINANCIAL PERFORMANCE TO COMMERCIAL BUSINESS

The following analyses were performed:

1. Comparison to Durable Goods Manufacturers:

   a. Return on Investment

      (1) Operating Profit to Total Assets

      (2) Operating Profits to Total Assets Not Reduced by Progress Payments

      (3) Operating Profits to Total Assets Reduced by Progress Payments

b. Profit Margins

(1) Operating Profits to Sales

(2) Operating Profit Less CAS 414 to Sales

2. Comparison to Manufacturing Industries:

a. Sales per Employee

b. Gross Fixed Assets per Employee

c. Value Added to Sales

E. IMPACT OF DOD POLICIES ON CONTRACTORS' FINANCIAL PERFORMANCE

The following analyses were performed:

a. Operating Profits to Sales

b. Gross Assets to Capital Expenditures

c. Capital Acquisitions to Profit

d. Capital Acquisitions to Profit plus Depreciation

The ratios listed above are described in more detail in following analyses and exhibits.

RETURN ON ASSETS

For ratios to be meaningful they should be compared to some benchmark. For the purposes of this analysis, the Quarterly Financial Report (QFR) data for durable manufacturing industries were used as the commercial business benchmark. A review of the QFR data shows that the firms in this database represent a wide range of industries and lines of business. Similarly, the 76 contractors in the DFAIR survey represent many industries including aircraft, shipbuilding, electronics, and missiles.

Given the diverse nature of the industries represented, profit to sales and asset turnover ratios, individually, are not significant. In a competitive marketplace, firms are not free to choose their profit margins or asset intensity. These ratios are a function of the nature of the industry in which these firms operate. The firms will experience profit margins and asset turnover performance that are consistent with the characteristic and nature of their industry and line of business.

The ratio which tends to adjust for differences inherent between industries is return on assets. Profit and turnover ratios interact to determine the profitability of assets which could be used for comparison purposes across industries. The linkage of these ratios is illustrated below.

$$\frac{\text{Return}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} = \frac{\text{Return}}{\text{Assets}}$$

A significant difference between defense contractors and commercial business is the level of progress payments. In 1983, progress payments represented 58.6% of the DFAIR participants assets and only 6.0% of the durable goods manufacturers' comparable assets.

The existence of progress payments complicates the ability to perform comparative financial analyses that rely on assets. The method in which progress payments are treated significantly affects the results of the analyses. The range of possible values for the return on assets calculation is where progress payments are either included or excluded from the asset base.

Return on Assets for both DFAIR and durable goods manufacturers were calculated two ways:

A. Assets are <u>not</u> reduced by progress payments; and

B. Assets <u>are</u> reduced by progress payments.

Each ratio and its results are presented separately. Comparisons of the respective values to the durable goods results are provided to highlight the impact that progress payments have within the defense industry.

A. OPERATING PROFIT TO TOTAL ASSETS

ASSETS NOT REDUCED BY PROGRESS PAYMENTS

OBJECTIVE

The comparison of operating profit to total assets is utilized to determine the productivity of assets employed in providing goods and services. The result is an indication of the efficiency and effectiveness of the assets employed. The calculation of the return on asset ratio for both the composite DFAIR participants and the durable goods data allows for objective comparisons of the respective asset utilization and efficiency.

In calculating the return on assets, it is desirable to measure the productivity of assets disregarding the capital structure, that is, financing methods employed. The theory is that assets are financed by stockholders, creditors and, in the case of government contracts, by the customer. Therefore, the ratio would measure the productivity of assets in providing returns to all classes of financing. As a result, the denominator of the return on assets ratio in this analysis was not been reduced by the amount of progress payments received.

Our analysis is focused on the utilization of assets in the production process therefore, operating profit has been chosen as the numerator of the ratio. The use of the operating profit excludes income and expense that may result from sources not generally related to operations.

ANALYSIS PERFORMED

To achieve the stated objective, the ratio was calculated using data for both durable goods and composite DFAIR participants for each of the nine years encompassed by the survey. The Durable Goods data are an annual average of values reported by the Department of Commerce in its Quarterly Financial Reports (QFR) publications. The DFAIR data are calculated using the appropriate data collection schedule data elements. Exhibit VI-1 provides the specific definitions used to calculate return on assets for the purposes of this analysis.

ANALYSIS RESULTS

The return on total assets for each of the nine years as well as a nine year average for both the durable goods and DFAIR data are provided in Exhibits VI-2 and VI-2a. These results indicate that on average, for the nine year period, durable goods manufacturers had a higher return on assets than DFAIR participants. The nine year average return on assets for durable goods was 12.4% compared to 10.0% for DFAIR. Starting in 1982,

the return on assets for DFAIR participants began to improve relative to durable goods. In 1982 and 1983 DFAIR participants realized a higher return on assets than durable goods manufacturers.

The decrease in return on assets for DFAIR in 1978 is due primarily to large losses incurred by the shipbuilding segment. Exhibits VI-3 and VI-3a shows that when shipbuilding data are excluded from the return on assets calculation for DFAIR, the resulting return on assets for DFAIR closely tracks the durable goods data for the period 1975 through 1980.

Since the return on assets ratio is a function of the return on sales ratio multiplied by the asset turnover ratio, examination of these ratio values is required to understand changes in the return on assets values. Values for these ratios are provided in Exhibit VI-4.

The improvement in return on assets for DFAIR participants relative to durable goods, over the last several years is due to several factors.

1. DFAIR participants began to realize improving profit margins while maintaining a relatively constant asset turnover rate. Operating income to sales ratio increased to 8.7% in 1983 from lower values in the preceding years. During this same period, the asset turnover remained relatively constant at 1.4. The combination of higher profit margins and constant asset turnover resulted in increasing return on assets since 1978.

2. While the financial performance of DFAIR participants has been improving since 1978, the durable goods manufacturers did not fare as well. Operating profit on sales declined to 5.6% in 1983 from a high of 9.0% in 1977. During the same time, the asset turnover had declined to 1.71 in 1983 from a high of 1.97 in 1977.

3. It appears that the declining financial performance for durable goods manufacturers is related to the economic business cycle. Exhibit VI-5 shows that the return on assets for durable goods consistently tracks the real growth rate in GNP.

Exhibit VI-1

OPERATING RETURN ON ASSETS DEFINITION

Assets Are Reduced by Progress Payments

DFAIR	DFAIR SURVEY DATA ELEMENT	DURABLE GOODS
OPERATING PROFIT:		
DOD Sales	Line 01	Net Sales
Less: Total Operating Costs	Line 05	Less: Operating Costs
Less: Unallowable Costs	Line 16	Equals: Operating Profit Before all Taxes
Plus: Interest Expense	Line 12	
Equals: Operating Profit before all Taxes		
ASSETS:		
Net Current Assets (Excluding Cash & Equivalents)	Line 11	Total Current Assets Less: Total Cash & Equivalents Less: U.S. Gov't Advances and Prepayments Equals: Net Current Assets
Plus: Net Equipment	Line 16	Plus: Net Property, Plant and Equipment
Plus: Net Building	Line 25	
Plus: Net Property	Line 34	
Plus: Construction in Progress	Line 38	
Equals: Assets		Equals: Assets

Exhibit VI-2

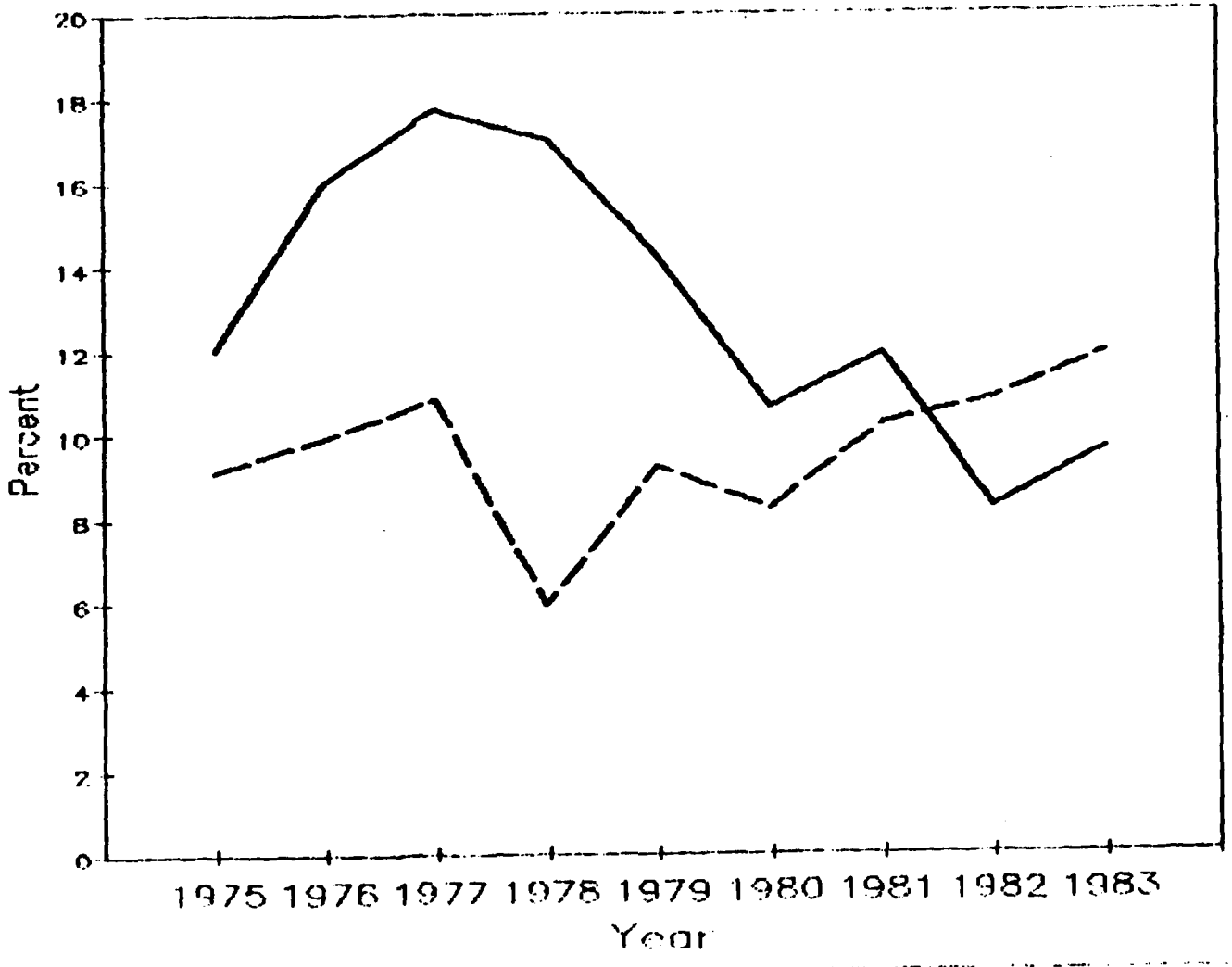
Operating Profit to Total Assets
(Assets Not Reduced by Progress Payments)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	Nine Yr. Average
Durable Goods %	12.0	16.0	17.7	17.0	14.2	10.6	11.9	8.2	9.2	12.4
DFAIR %	9.1	9.9	10.8	5.9	9.2	8.2	10.2	10.8	11.9	10.0

Source: Bureau of Census
DFAIR

Exhibit VI-2a

DFAIR STUDY
Operating Profit to Total Assets
Assets Not Reduced
By Progress Payments



LEGEND

—— Durable Goods

– – DFAIR

Source: Bureau of Census
DFAIR

Exhibit VI-3

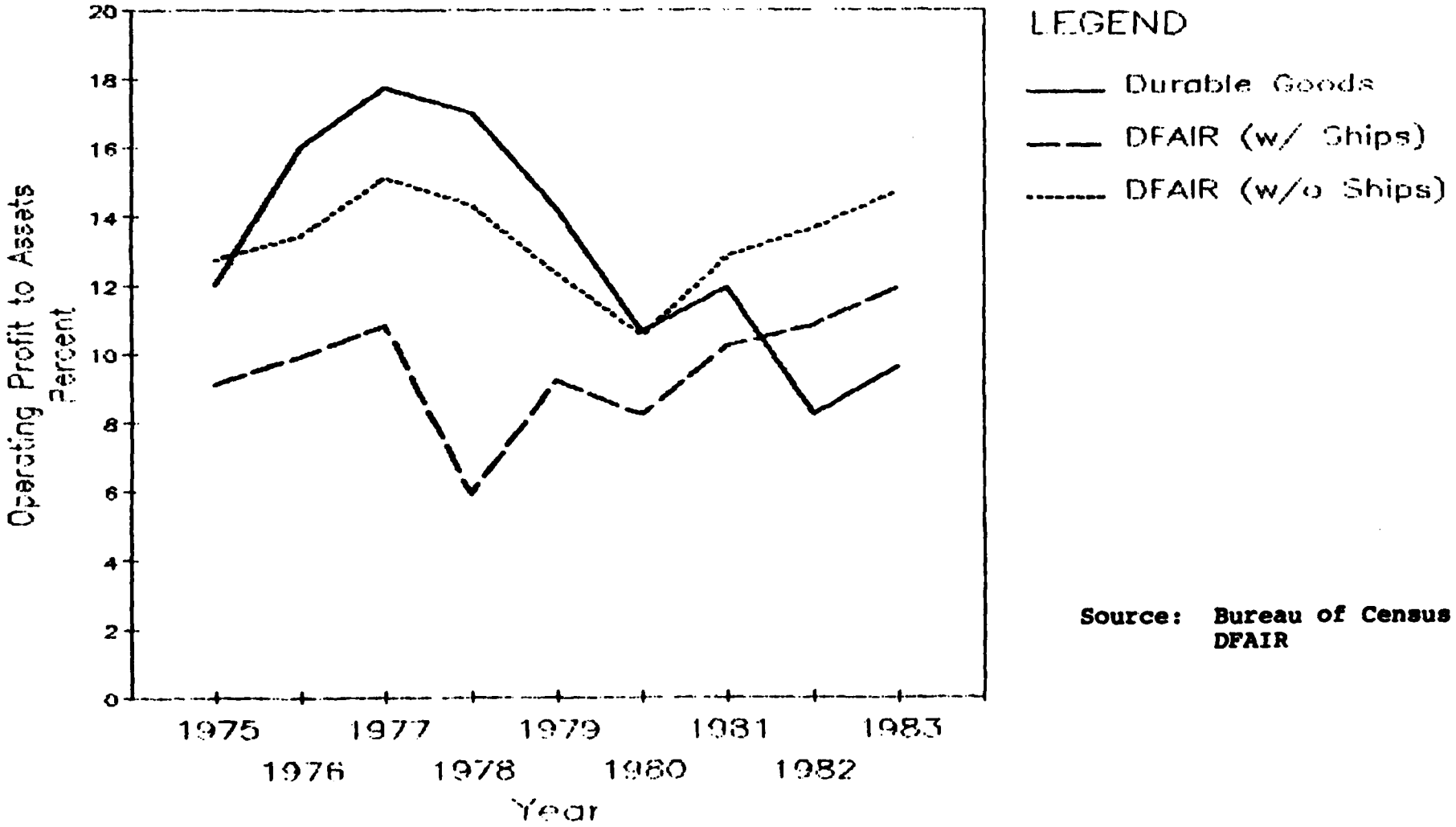
Operating Profit to Total Assets
(DFAIR Net of Shipbuilding)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	Nine Yr. Average
Durable Goods %	12.0	16.0	17.7	17.0	14.2	10.6	11.9	8.2	9.6	12.4
DFAIR % (Net of Shipbuilding)	12.7	13.4	15.1	14.3	12.3	10.5	12.8	13.6	14.7	13.4

Source: Bureau of Census
DFAIR

Exhibit VI-3a

DFAIR STUDY
Operating Profit to Assets
Net of Shipbuilding
Summary



Source: **Bureau of Census**
DFAIR

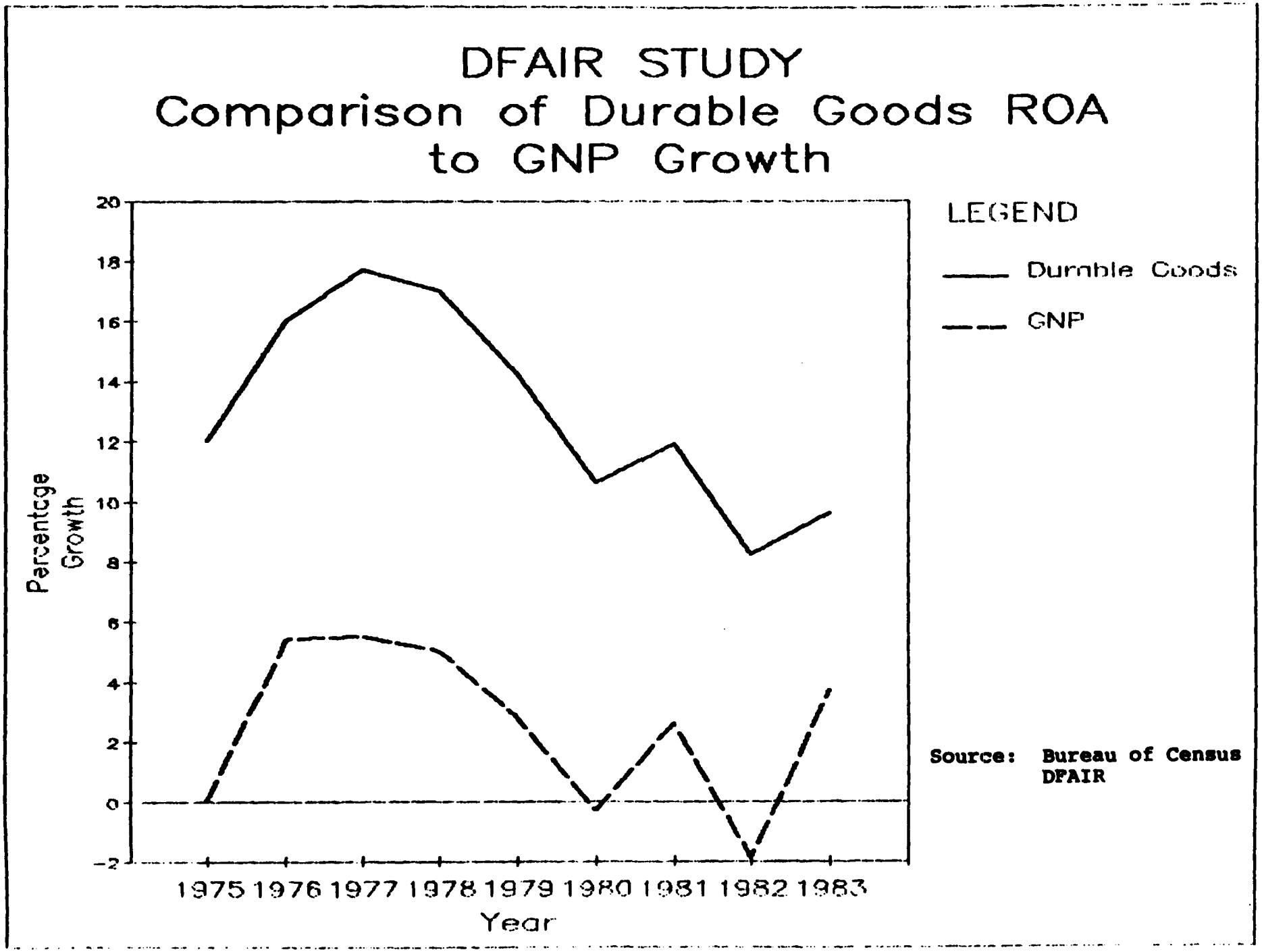
Exhibit VI-4

RETURN MEASUREMENT

Assets Are Not Reduced By Progress Payments

	DFAIR			Durable Goods		
Year	Operating Profit to Sales	Asset Turnover	Operating Profit to Assets	Operating Profit to Sales	Asset Turnover	Operating Profit To Assets
1975	5.9%	1.54	9.1%	6.9%	1.74	12.0%
1976	6.5	1.52	9.9	8.4	1.90	16.0
1977	6.9	1.57	10.8	9.0	1.97	17.7
1978	4.0	1.48	5.9	8.8	1.93	17.0
1979	6.7	1.37	9.2	7.5	1.89	14.2
1980	6.2	1.32	8.2	6.1	1.74	10.6
1981	7.4	1.38	10.2	6.8	1.75	11.9
1982	7.8	1.38	10.8	5.1	1.61	8.2
1983	8.7	1.37	11.9	5.6	1.71	9.6
Nine Year Average	7.1	1.41	10.0	7.0	1.77	12.4

Source: Bureau of Census
DFAIR


DFAIR STUDY
Comparison of Durable Goods ROA
to GNP Growth
Percentage Growth
20
18
16
14
12
10
8
6
4
2
0
-2
1975 1976 1977 1978 1979 1980 1981 1982 1983
Year
LEGEND
Durable Goods
GNP
Source: Bureau of Census
DFAIR

B. OPERATING PROFIT TO TOTAL ASSETS

ASSETS REDUCED BY PROGRESS PAYMENTS

OBJECTIVE

The calculation of an asset return ratio where assets are reduced by progress payments identifies the return on those assets in which the contractors have an ownership interest. Since progress payments effectively transfer title from the contractor to the government, total assets (e.g., inventory and accounts receivable) are reduced by the total progress payment amount. The objective of this analysis was to examine the effects progress payments have on the profitability of defense contractors.

ANALYSIS PERFORMED

The ratio was calculated, for each of the nine years encompassed by the survey using data for durable goods and DFAIR survey data. The durable goods data reflects an annual average of values reported by the Department of Commerce in its Quarterly Financial Reports (QFR) publications. The aggregate DFAIR data are calculated using the appropriate survey data elements. Exhibit VI-6 provides the definitions used to calculate return on assets for the purposes of this analysis.

ANALYSIS RESULTS

The return on assets net of progress payments for each of the nine years as well as the nine year average for both the durable goods and DFAIR firms are provided in Exhibit VI-7 and VI-7a. With the exception of 1978, return on assets for the DFAIR participants exceed those for the durable goods manufacturers. The defense nine year average is almost double that for the durable goods.

The reasons that progress payments, when subtracted from assets, have such a significant impact on return on assets for DFAIR participants are:

1. Progress payments are a significant component of the asset structure for DFAIR participants relative to the durable goods manufucatures. Exhibit VI-8 shows that for the nine year average, progress payment represented 55.9% of total assets for DFAIR participants. For durable goods manufacuturers, progress payments represented than 3.7% of their assets for the nine year average.

2. Subtracting the progress payments from the assets increases the asset turnover ratio for DFAIR particpants. The nine year average asset turnover

increases to 3.18 from 1.41 for the nine year average when assets are reduced by progress payments (See Exhibit VI-9). Since progress payments are not significant relative to the total assets for durable goods manufacturers, the average asset turnover for durable goods manufacturers increases only to 1.84 from 1.77 when assets are reduced by progress payments.

3. The return on asset values are materially affected by the extent that progress payments represent as a percentage of total assets. For DFAIR participants, subtracting progress payments increases the nine year return on asset to 22.6% from 10.0%. The nine year average return for durable goods manufacturers increases less than 1% to 12.9%.

Exhibit VI-6

OPERATING RETURN ON ASSETS DEFINITION

Assets Are Not Reduced by Progress Payments

DFAIR	DFAIR SURVEY DATA ELEMENT	DURABLE GOODS
OPERATING PROFIT:		
DOD Sales	Line 01	Net Sales
Less: Total Operating Costs	Line 05	Less: Operating Costs
Less: Unallowable Costs	Line 16	Equals: Operating Profit Before All Taxes
Plus: Interest Expense	Line 12	
Equals: Operating Profit Before All Taxes		
ASSETS:		
Net Current Assets (Excluding Cash & Equivalents)	Line 11	Total Current Assets
Plus: Progress Payments and Advances	Line 08	Less: Total Cash & Equivalents
Plus: Net Equipment	Line 16	Plus: Net Property, Plant and Equipment
Plus: Net Building	Line 25	Equals: Assets
Plus: Net Property	Line 34	
Plus: Construction in Progress	Line 38	
Equals: Assets		

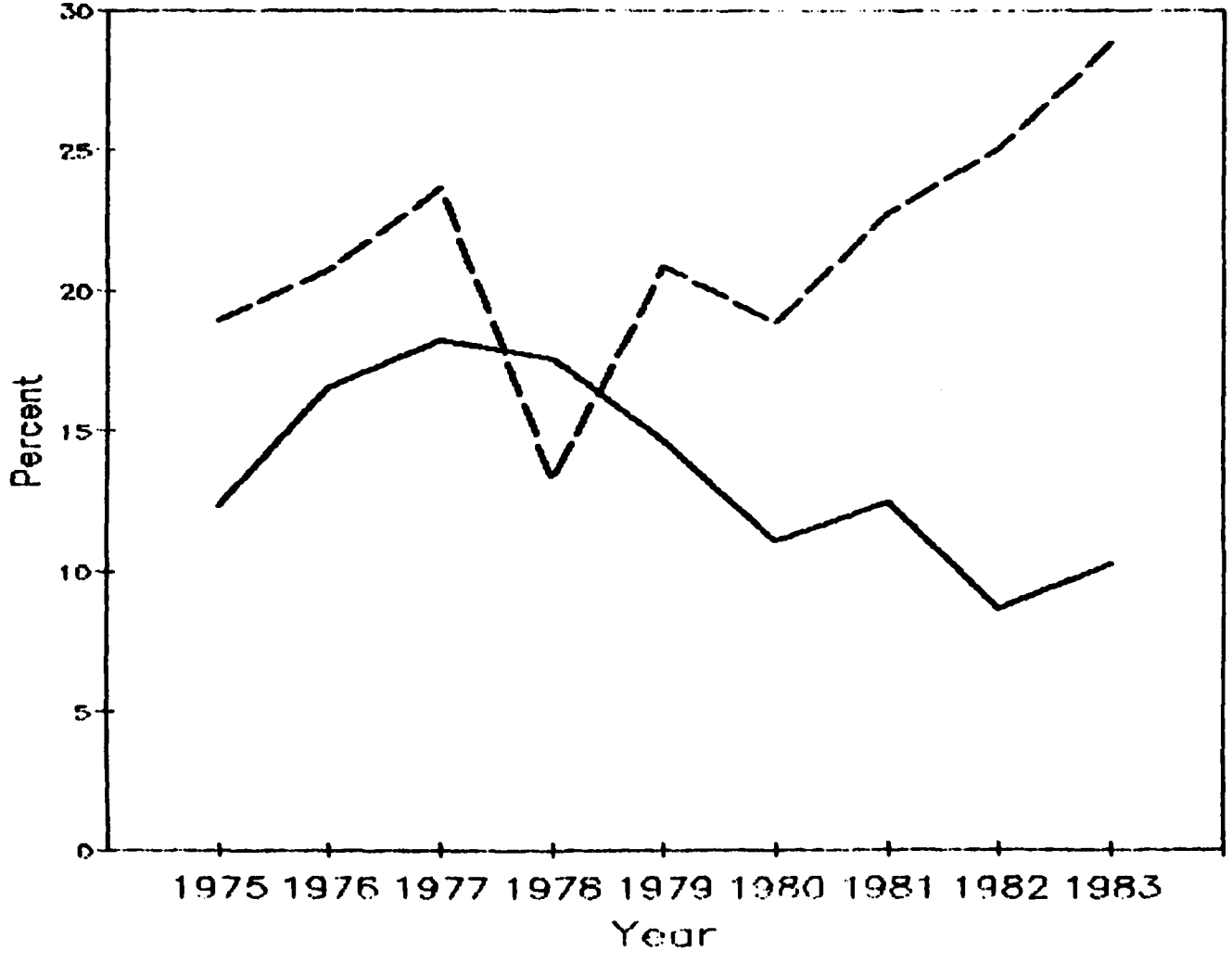
Exhibit VI-7

Operating Profit to Total Assets
(Assets Reduced by Progress Payments)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	Nine Yr. Average
Durable Goods %	12.3	16.5	18.2	17.5	14.6	11.0	12.4	8.6	10.2	12.9
DFAIR %	18.9	20.7	23.6	13.2	20.8	18.8	22.7	25.0	28.8	22.6

Source: Bureau of Census
DFAIR

DFAIR STUDY
Operating Profits to Total Assets
Assets Reduced
By Progress Payments



LEGEND

—— Durable Goods

– – – DFAIR

Source: Bureau of Census
DFAIR

Exhibit VI-8

Progress Payments as a Percentage of Total Assets

	1975	1976	1977	1978	1979	1980	1981	1982	1983	Nine Yr. Average
Durable Goods	2.5	2.8	2.5	2.7	2.9	3.6	3.8	4.5	6.0	3.7
DFAIR	51.6	52.5	54.0	55.5	56.0	56.4	54.9	56.6	58.6	55.9

Source: Bureau of Census
DFAIR

Exhibit

RETURN MEASUREMENT

Assets Are Reduced By Progress Payments

	DFAIR			Durable Goods		
Year	Operating Profit to Sales	Asset Turnover	Operating Profit to Assets	Operating Profit to Sales	Asset Turnover	Operating Profit To Assets
1975	5.9%	3.20	18.9%	6.9%	1.78	12.3%
1976	6.5	3.18	20.7	8.4	1.96	16.5
1977	6.9	3.42	23.6	9.0	2.02	18.2
1978	4.0	3.30	13.2	8.8	1.99	17.5
1979	6.7	3.10	20.8	7.5	1.96	14.6
1980	6.2	3.03	18.8	6.1	1.80	11.0
1981	7.4	3.07	22.7	6.8	1.82	12.4
1982	7.8	3.21	25.0	5.1	1.69	8.6
1983	8.7	3.31	28.8	5.6	1.82	10.2
Nine Year Average	7.1	3.18	22.6	7.0	1.84	12.9

Source: Bureau of Census
DFAIR

OPERATING PROFITS TO SALES

OBJECTIVE

To measure return on sales, we used operating profits as the numerator. By using operating profits, income or expenses from sources other than those associated with operations have been excluded.

ANALYSIS PERFORMED

To achieve the stated objective the ratio was calculated using data for both durable goods for each of the nine years encompassed by the DFAIR survey. The durable goods data are an annual average of values reported by the Department of Commerce in its Quarterly Financial Reports (QFR) publications. The DFAIR data are aggregated from the data collection schedules. The DFAIR ratios were calculated for the DOD business using the following DFAIR survey data elements:

- OPERATING PROFITS = Sales (line 01) - Total Operating Costs (line 05)
  - Total Unallowable Costs (line 16)
  + Interest (line 12)
- SALES = Sales (line 01)

ANALYSIS RESULTS

The operating profits on sales for each of the nine years as well as the nine year average for both durable goods manufacturer and DFAIR participants data are provided in Exhibits VI-10 and VI-10a.

For the period 1975 through 1979 durable goods manufacturers realized higher operating profits to sales than the DFAIR participants. This trend reversed in 1980, and the DFAIR participants began to show higher operating profits to sales than durable goods manufacturers. For the nine year period ending 1983, the average return on sales for both the DFAIR particpants and the durable goods manufacturers are not significantly different. The DFAIR participants showed a 7.1% return on sales versus 7.0% for durable goods.

To ascertain the reasons that might account for changes in profit margins for DFAIR participants as compared to the durable goods data, we examined profitability by contract type.

Exhibit VI-11 shows that during 1981 to 1983, allowable profits under cost type contracts have not changed. Allowable profits under fixed price type contracts have increased during this same period. Prime fixed price contracts earned 11.8% return on sales in 1983, increasing from the 9.9% earned in 1981. This increase explains most of the change in profit margins during 1981 to 1983.

At the same time that allowable profits have increased for fixed price type contracts, the sales mix by type of contract has also changed. Exhibit VI-12 shows that there has been a shift from cost-type to fixed price type contracts. The percent of the segments' DOD sales that were under cost type contracts decreased from 35.5% in 1981 to 27.3% in 1983. During this same period, the amount of fixed price prime type contracts increased. In 1983, fixed price type contracts represented 72.7% of the segments' DOD sales, an increase from 64.5% in 1981.

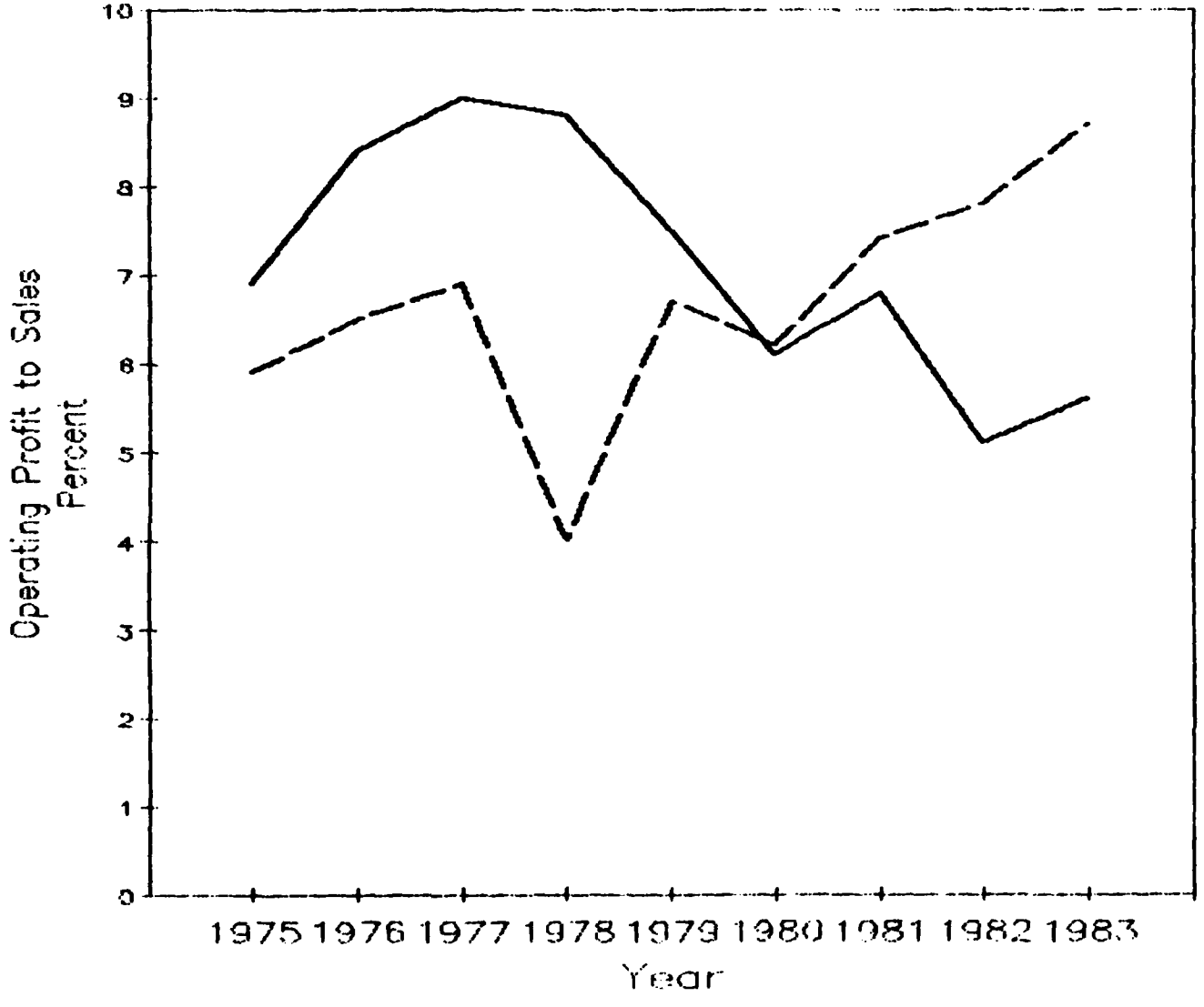
Exhibit VI-10

Operating Profit to Sales

	1975	1976	1977	1978	1979	1980	1981	1982	1983	Nine Yr. Average
Durable Goods %	6.9	8.4	9.0	8.8	7.5	6.1	6.8	5.1	5.6	7.0
DFAIR %	5.9	6.5	6.9	4.0	6.7	6.2	7.4	7.8	8.7	7.1

Source: Bureau of Census
DFAIR

DFAIR STUDY
Operating Profit to Sales
Summary



LEGEND

—— Durable Goods

– – DFAIR

Source: Bureau of Census
DFAIR

Exhibit VI-11

Allowable Profit to Sales
By Contract Type

	1981	1982	1983
Cost Type Contract:			
Prime	7.2%	7.5%	6.6%
Subcontractor	7.9	6.2	6.4
FMS	6.5	8.4	9.5
Fixed Price Type Contracts:			
Prime	9.9	10.4	11.8
Subcontractor	7.3	9.7	10.4
FMS	13.7	12.3	15.5

Source: DFAIR

Exhibit VI-12

Sales Mix Percentages
By Contract Type
Percent of DOD Sales

	1981	1982	1983
Cost Type Contracts	35.5%	31.7%	27.3%
Fixed Price Contracts	64.5	68.3	72.7
Total	100.0%	100.0%	100.0%

Source: Bureau of Census
DFAIR

RATIO OF CAS 414 COST OF MONEY TO SALES

OBJECTIVE

The objective of this analysis was to ascertain the effect of the imputed interest included in profits for defense contractors. This analysis would identify the extent to which CAS 414 cost of money contributed to the return on sales for the DFAIR participants.

ANALYSIS PERFORMED

The DFAIR survey collected CAS 414 data for 1981-1983. Allowable CAS 414 interest was compared to total defense related sales to derive the contribution of CAS 414 cost of money to return on sales.

ANALYSIS RESULTS

Exhibit VI-13 provides the contribution of CAS 414 cost of money to sales. The percentage of the DFAIR operating profit that could be represented by CAS 414 interest is 1.7% in 1981, 1.8% in 1982, and 1.5% in 1983.

Exhibit VI-13

Calculation of CAS 414 Contribution to Return on Sales
(in Millions of Dollars)

	1981	1982	1983
1. Allowable CAS 414 Interest (line 20)	$ 765.2	$ 971.6	$ 950.4
2. Sales (line 01)	$44,189.6	$55,326.3	$65,552.4
3. Percent Allowable CAS 414 Interest to Sales	1.7%	1.8%	1.5%

CAPITAL EXPENDITURE ANALYSIS

OBJECTIVE

The objective of this analysis was to determine the trend in capital acquisitions from 1975 through 1983 for the DFAIR participants.

ANALYSIS PERFORMED

We calculated several ratios to measure the extent to which DFAIR participants have been investing in capital assets. The ratios analyzed and their corredponding DFAIR survey source are noted below:

1. Capital Expenditures to Sales;

   Capital Expenditure = line 18 + line 27 + line 36, Column D
   Sales = line 01, Column J

2. Gross Book Value of Fixed Assets to Capital Expenditures;

   Gross Book Value = line 15 + line 24 + line 33 + line 38, Column D
   Capital Expenditure = line 18 + line 27 + line 36, Column D

3. Capital Expenditures to Profit before Federal tax; and

   Capital Expenditure = line 38, Column D
   Profit before Federal Tax = line 17, Column J

4. Capital Expenditures to Profit plus Depreciation

   Capital Expenditure = line 18 + line 27 + line 36, Column D
   Profit before Federal Tax = line 17, Column J
   Depreciation = line 17 + line 26 + line 35, Column D

The DFAIR survey collected data on capital expenditures for the total reporting segment. Consequently, the ratios described above were calculated for the total reporting segment.

ANALYSIS RESULTS

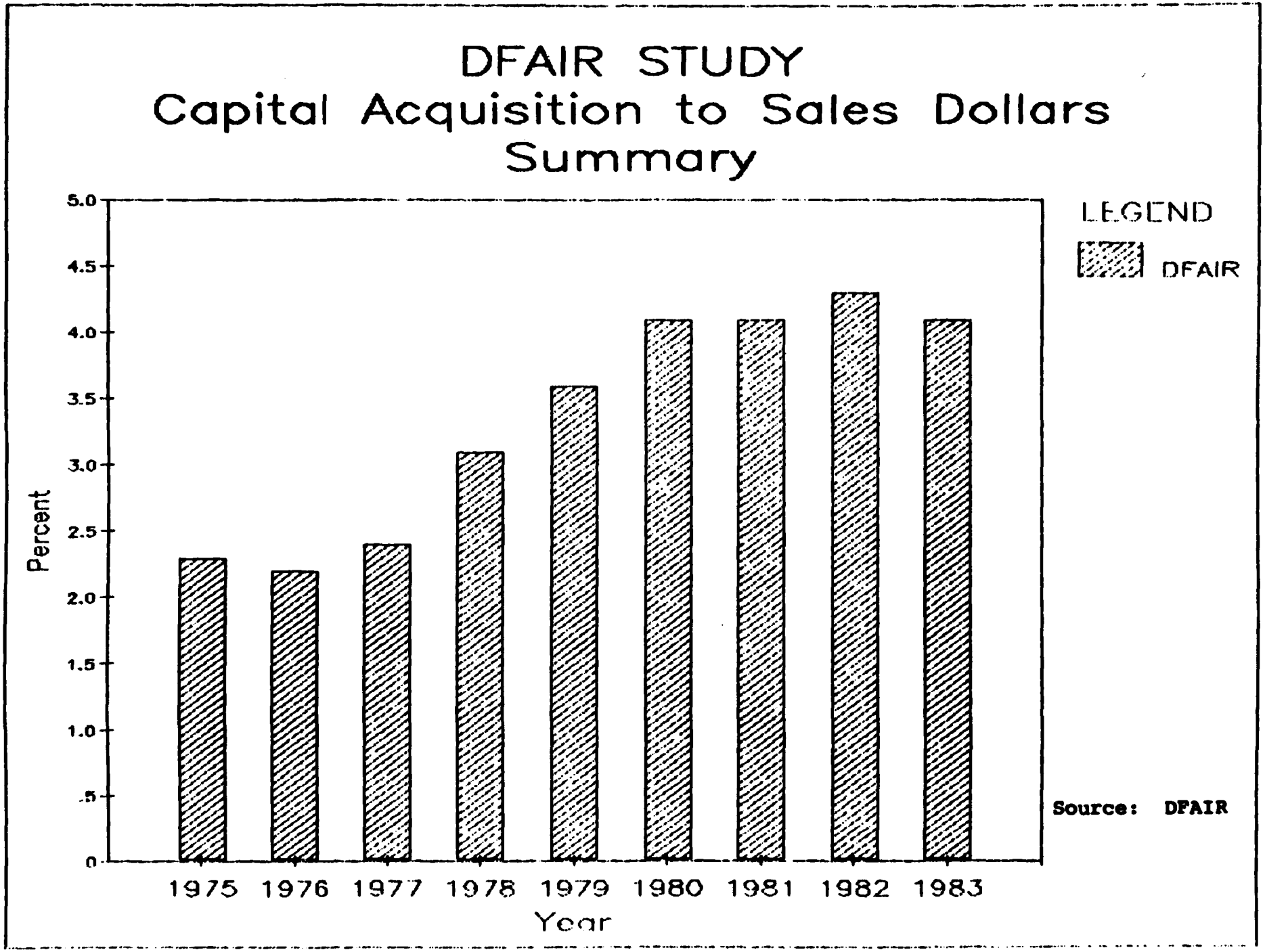
Exhibit VI-14 shows capital acquisitions as a percent of sales dollars. The data shows that capital acquisitions increased more quickly than sales and almost doubled in the nine year period.

To measure the rate of capital replacement, we computed the time it would take for the gross book value of fixed assets to be replaced. Exhibit VI-15 shows that at the 1975 level of capital acquisition, it would take 11 years to replace all assets. By 1983 assets were being acquired at a rate which would replace the current gross book value of fixed assets in approximately 6 years.

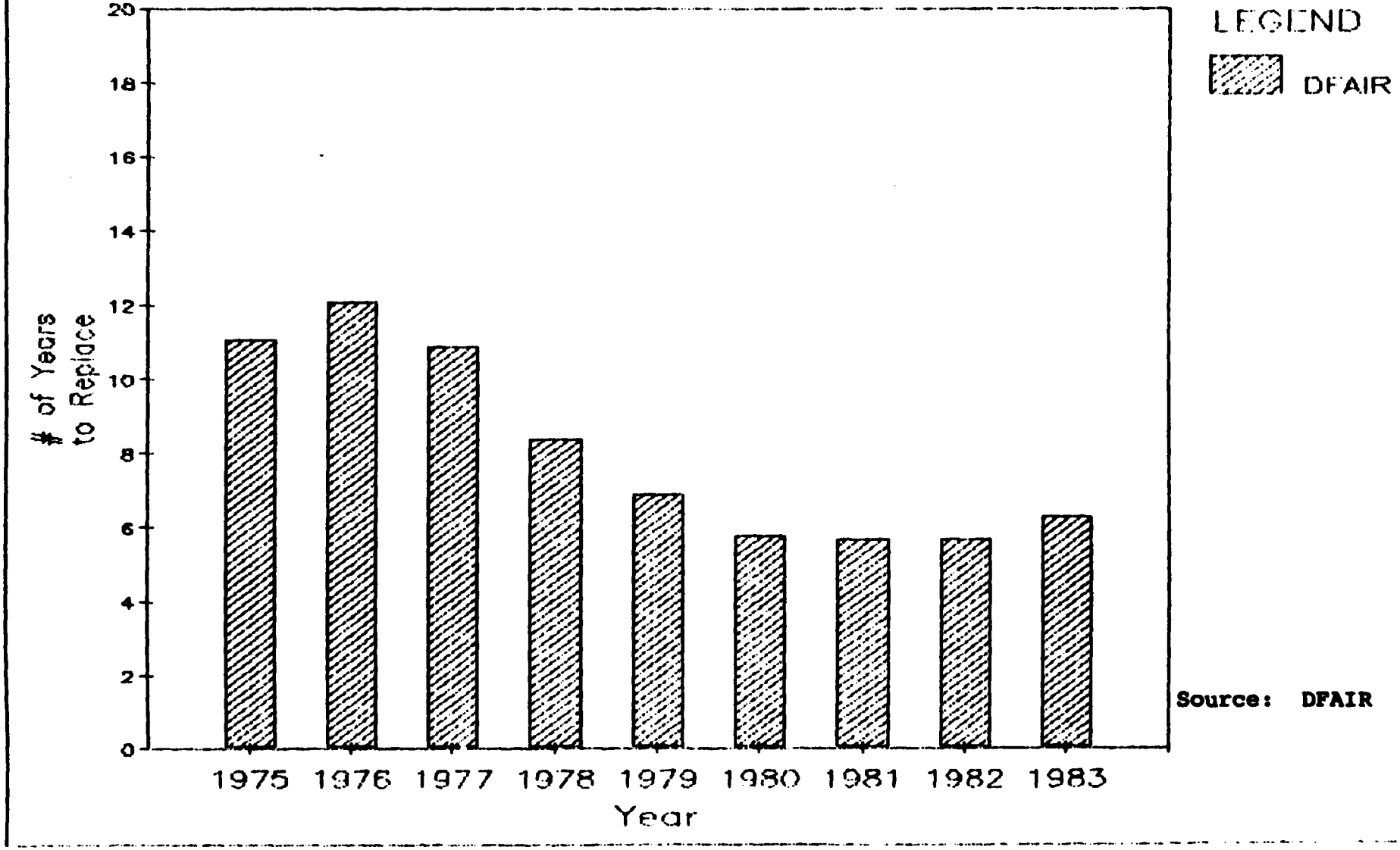
Exhibit VI-16 shows capital acquisitions as a percentage of profit before federal taxes. Survey participants, on average for the nine year period, expended 69% of profits on capital acquisitions.

Exhibit VI-17 shows capital acquisitions as a percentage of profit before federal taxes plus depreciation. The average nine year value for this calculation is 48%.

Exhibit VI-14



DFAIR STUDY
Rate of Asset Replacement
Summary



Source: DFAIR

Exhibit VI-16

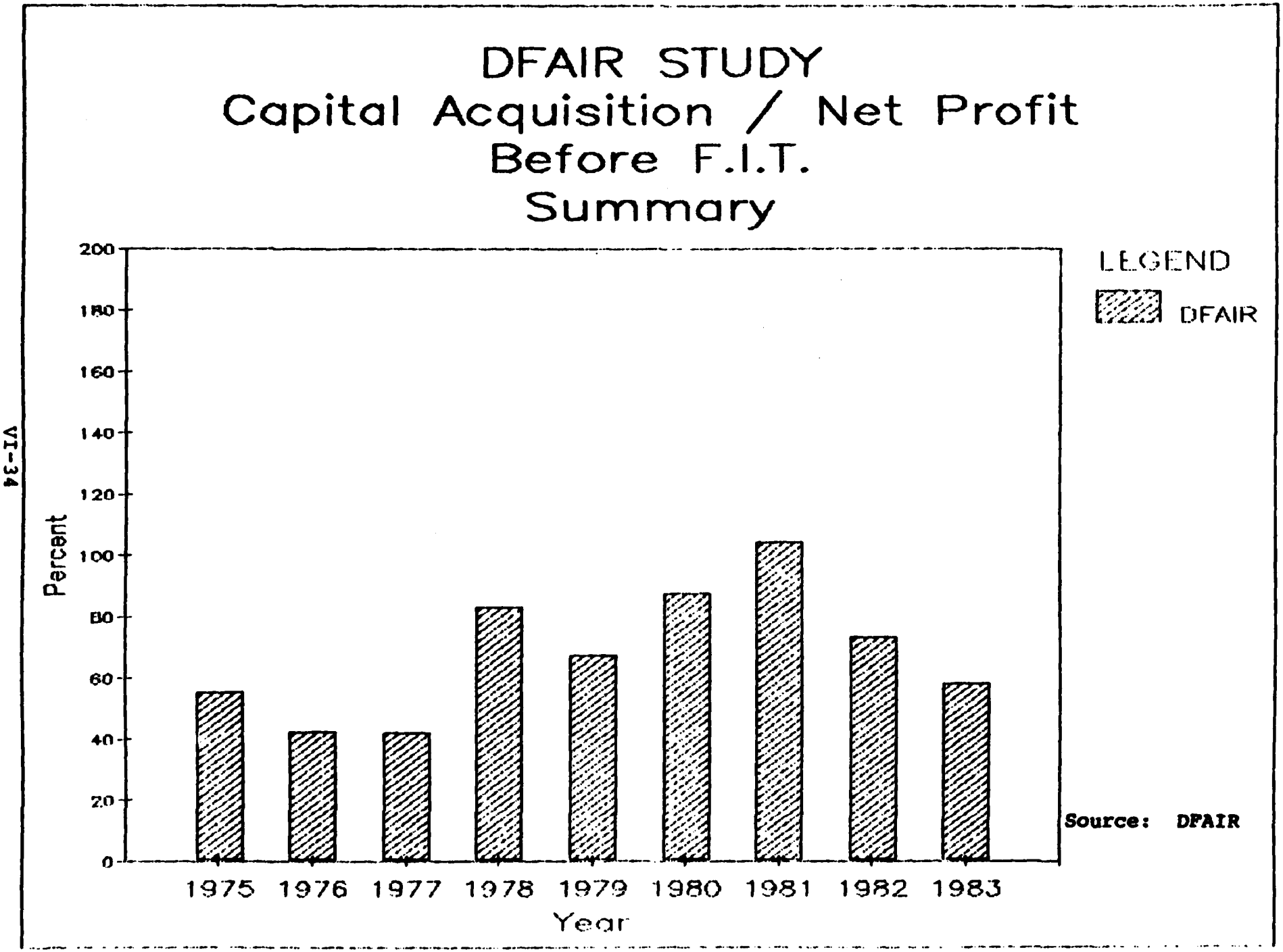
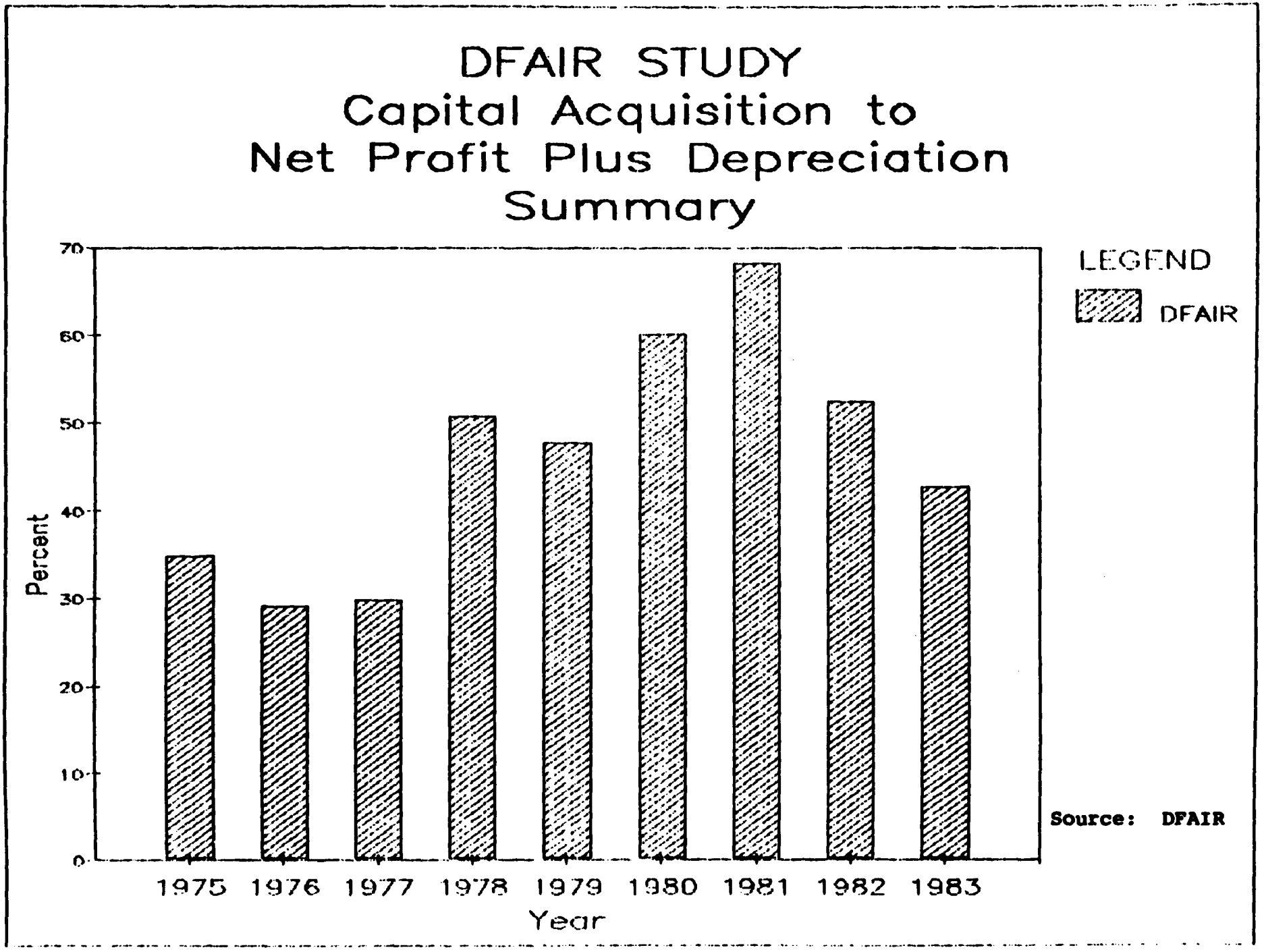


Exhibit VI-17



COMPARISON OF CAPITAL INTENSITY

OBJECTIVE

The objective of this analysis was to look at the capital intensity of the survey population compared to manufacturers in related industries to determine the extent to which defense contractors use capital rather than labor as compared to other industries.

ANALYSIS PERFORMED

We examined data relating to the dollars of gross fixed assets per employee for both the DFAIR participants and census data manufacturers. We used 1981 as a comparison period since it is the only year for which comparable census data are available. The DFAIR survey data source for the ratios analyzed are noted below:

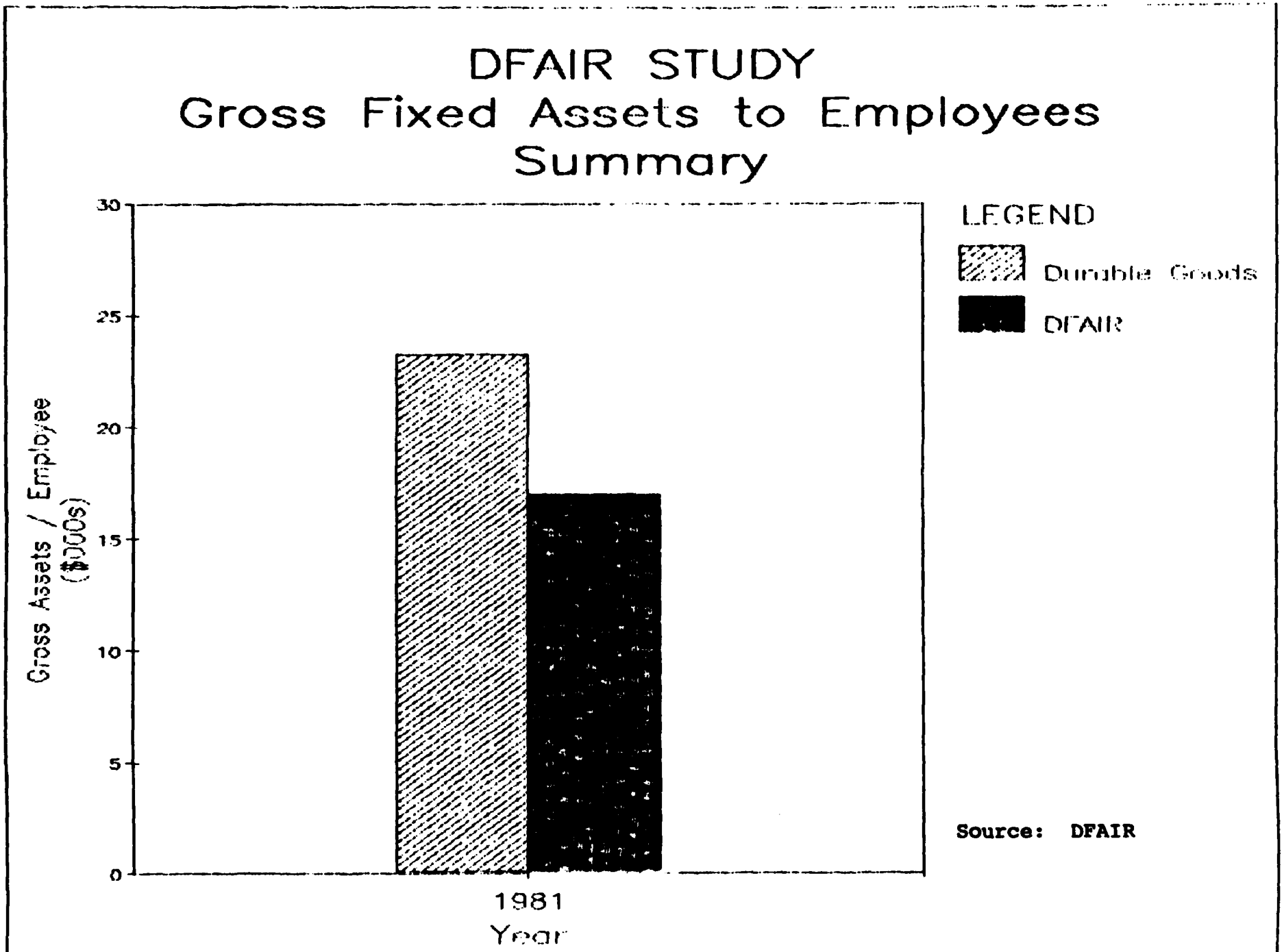
Gross Book Value of Fixed Assets	= line 15 + line 24 + line 33+ Line 38, Column D
Employees	= DFAIR survey schedule

ANALYSIS RESULTS

Exhibit VI-18 shows that the census data manufacturers possessed gross asset values of $23,000 per employee compared to the DFAIR participants with average of $17,000 per employee.

This analysis indicates that the census data manufacturers have more gross investment per employee then DFAIR reporting segments. The DFAIR data noted above excludes government owned fixed assets. Including government owned fixed assets may increase the DFAIR value for gross fixed asset per employee by about $3,000. This is based on an analysis of the government owned assets data which were available for 1983.

Exhibit VI-18



COMPARISON OF PRODUCTIVITY

OBJECTIVE

The objective of this analysis was to compare productivity of the DFAIR participants with Census data on related manufacturing industries.

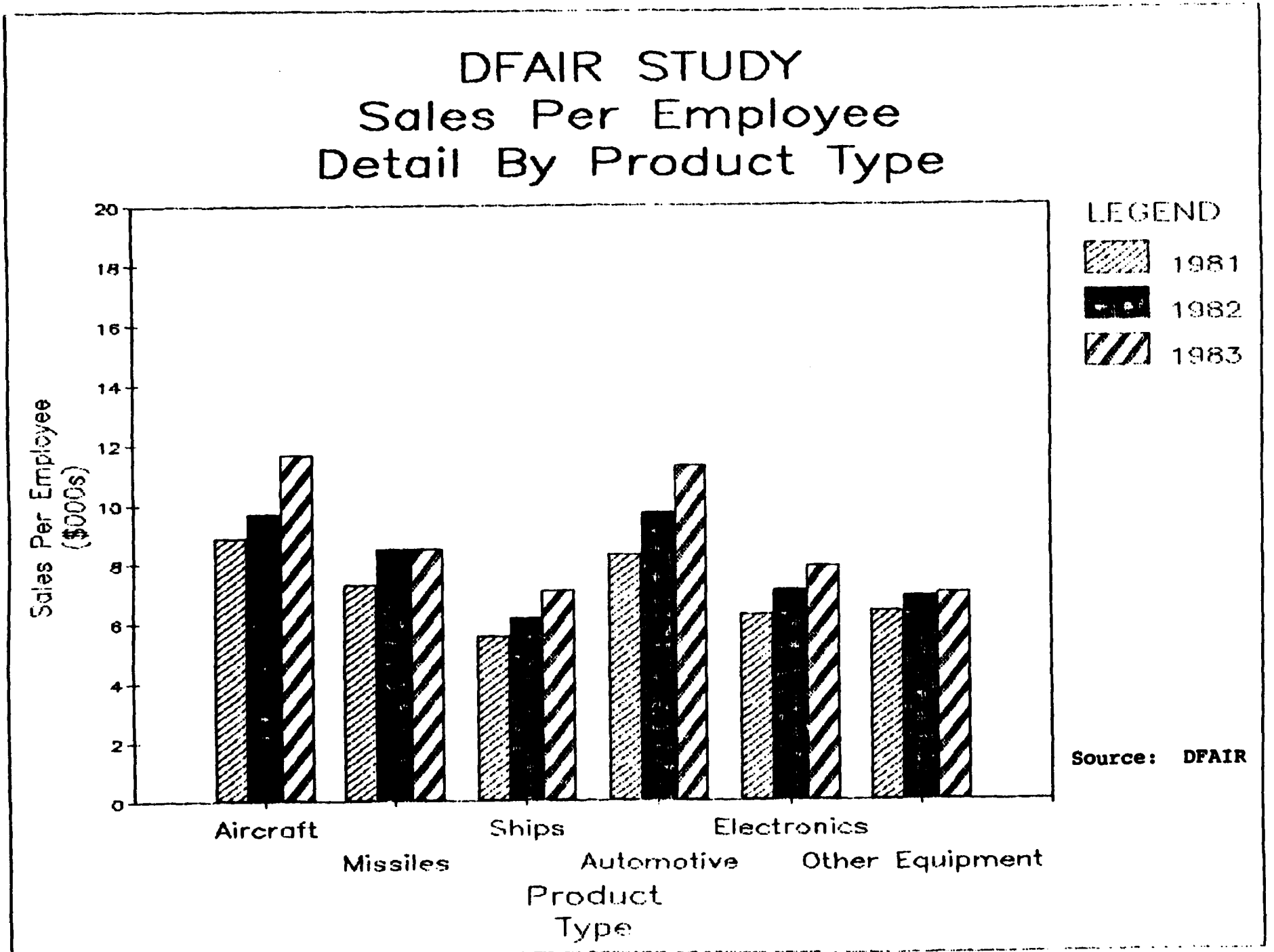
ANALYSIS PERFORMED

We examined sales dollars per employee for both the DFAIR participants and Census data manufacturers. We used 1981 as a comparison period since it is the only year for which comparable Census data are available. We also examined value added as a percentage of sales. Value added for the DFAIR data was defined as total operating costs less purchased direct materials and subcontracts. This value is represented by line 03 of Schedule IA in the DFAIR data collection package.

ANALYSIS RESULTS

Manufacturers in the Census data for 1981 generated $87,000 in sales per employee. DFAIR participating segments, in 1981, generated varying levels of sales dollars, from a high of $89,000 for aircraft and aircraft engines to $56,000 for shipbuilding. (see Exhibit VI-19).

The Census data indicated that value added as a percentage of sales for durable goods manfacturers was approximately 50% for each year over a five year period ending 1981. For 1983, the one year for which data was available for the DFAIR survey participants, the average survey ratio for all industries was 53%.


DFAIR STUDY
Sales Per Employee
Detail By Product Type
Sales Per Employee ($000s)
20
18
16
14
12
10
8
6
4
2
0
LEGEND
1981
1982
1983
Aircraft
Missiles
Ships
Automotive
Electronics
Other Equipment
Product Type
Source: DFAIR

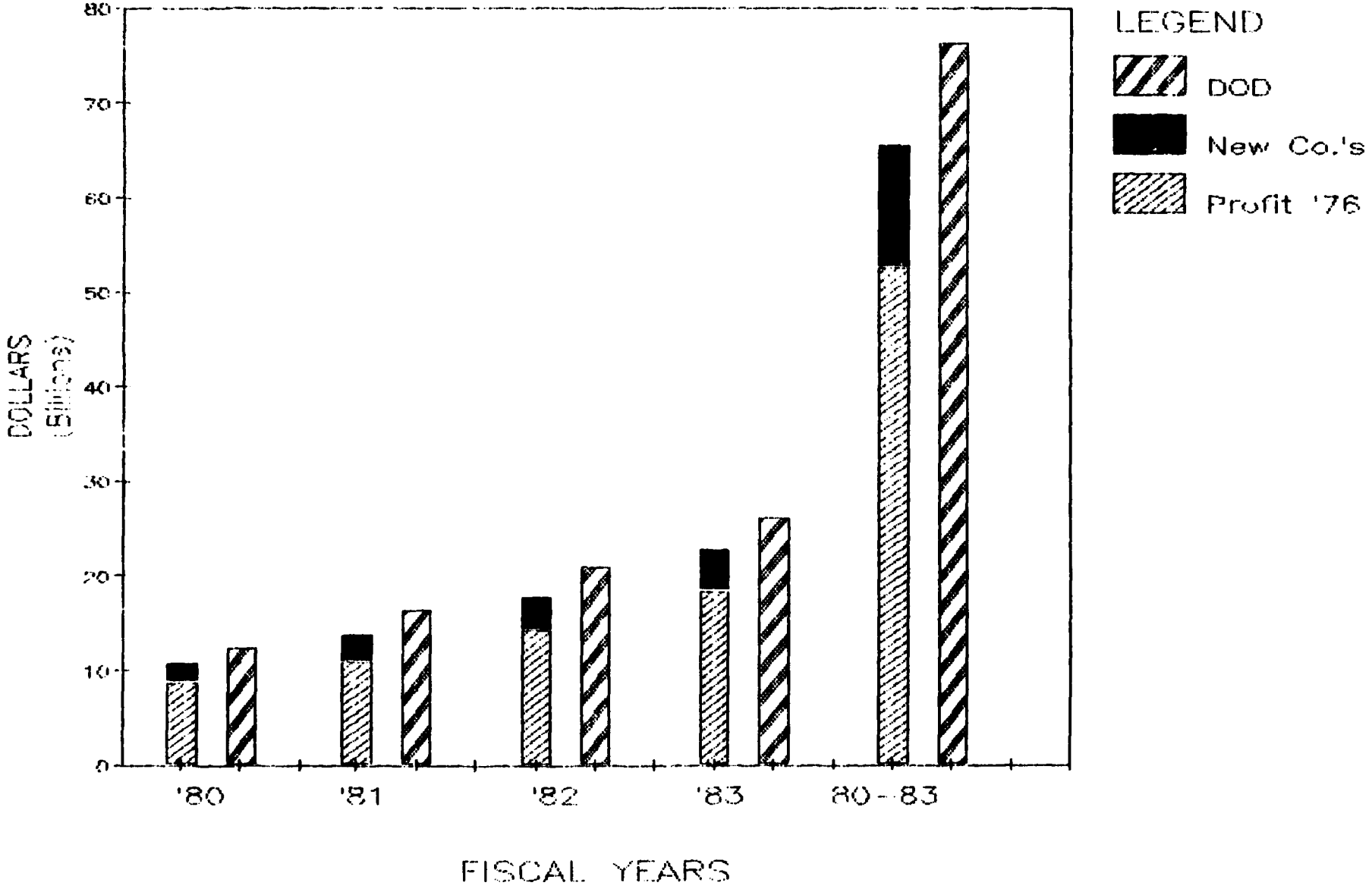
APPENDIX

I. COVERAGE OF THE DFAIR SURVEY

COVERAGE OF DFAIR PARTICIPANTS TO

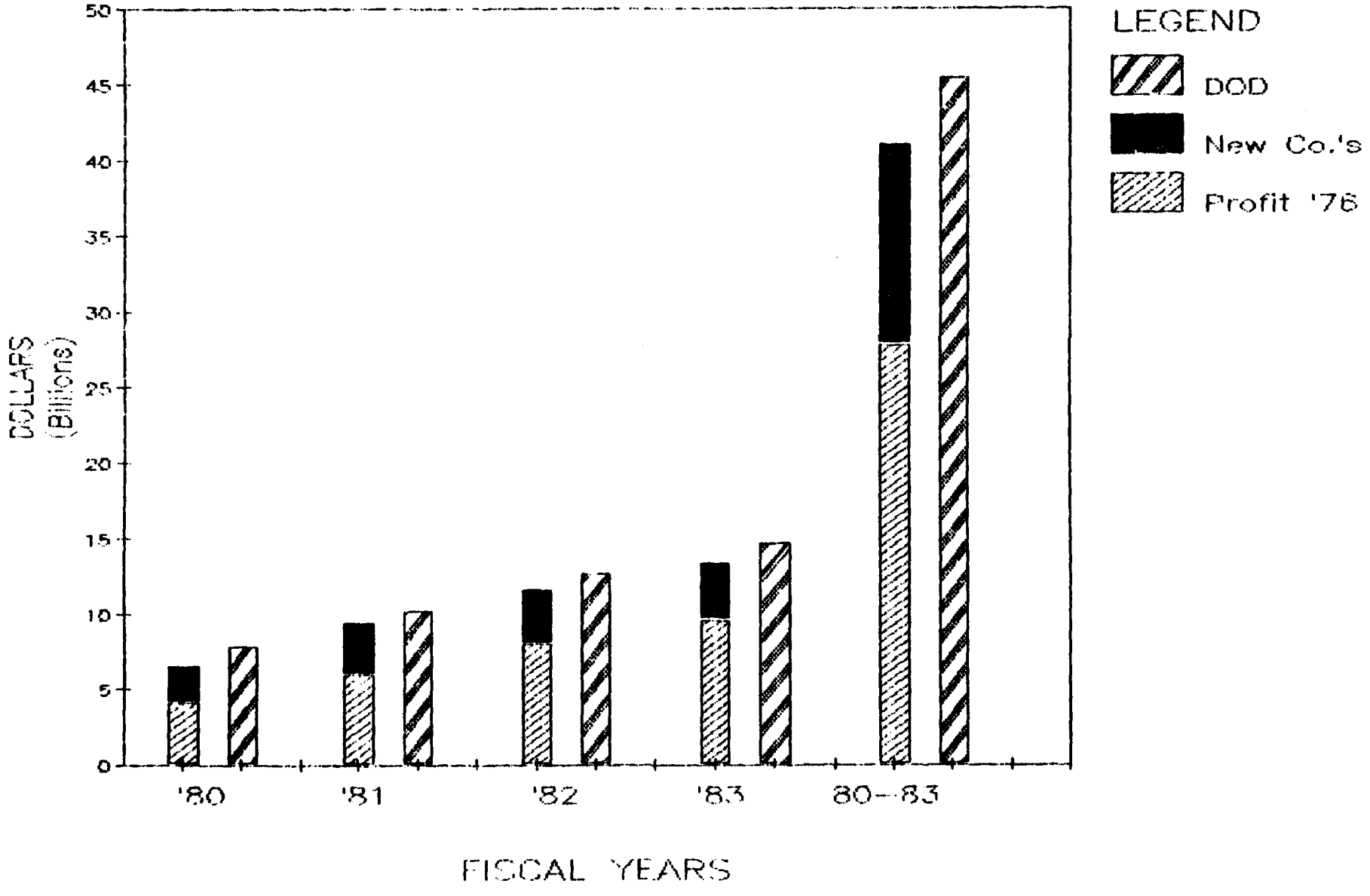
TOTAL DOD PROCUREMENT

DFAIR Participants vs. Total DOD
Aircraft and Aircraft Engines
Military Prime Contract Actions



Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Survey Population vs. Total DOD
Missile and Space Systems
Military Prime Contract Actions

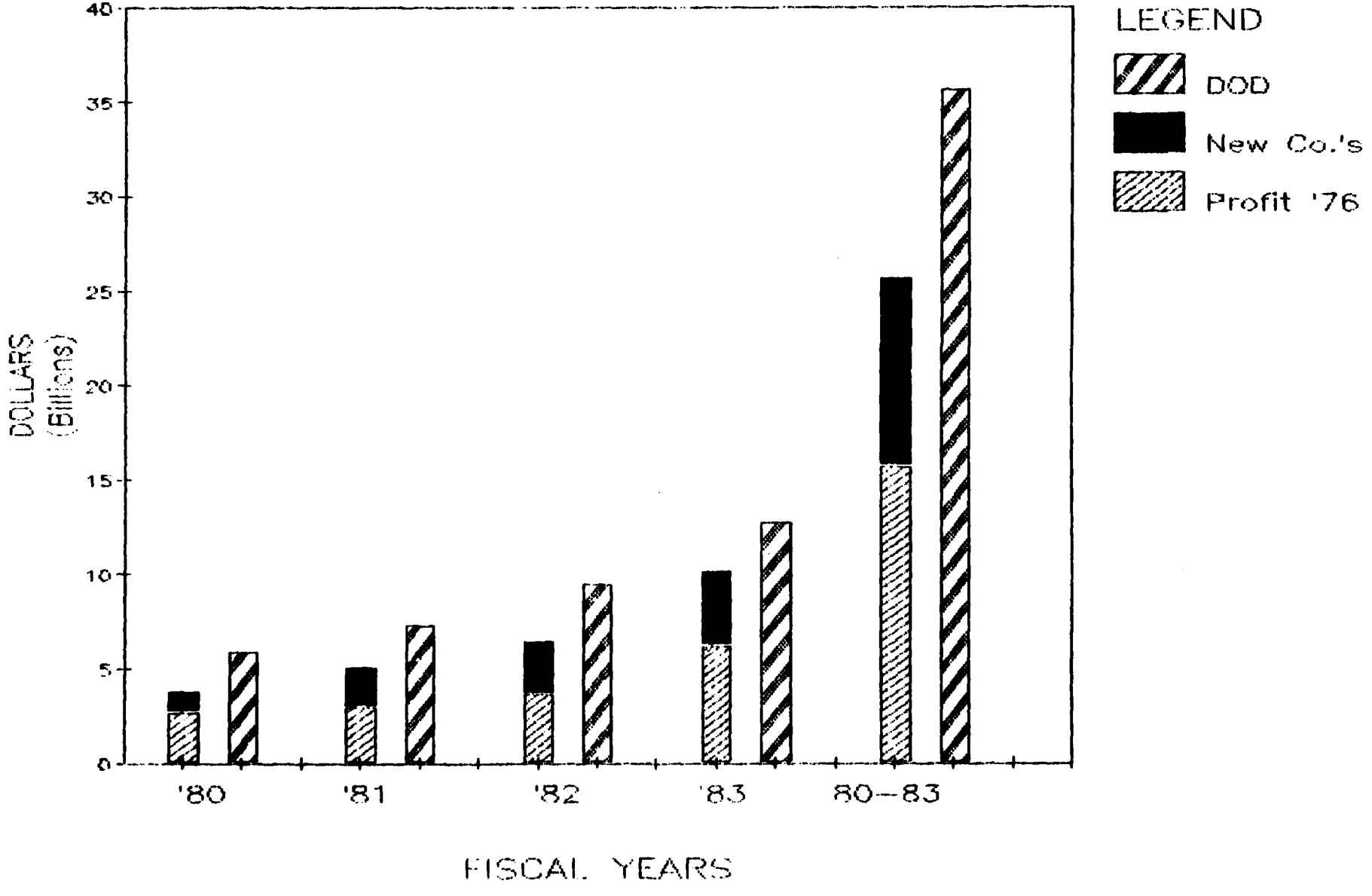


Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Participants vs. Total DOD

Ships

Military Prime Contract Actions

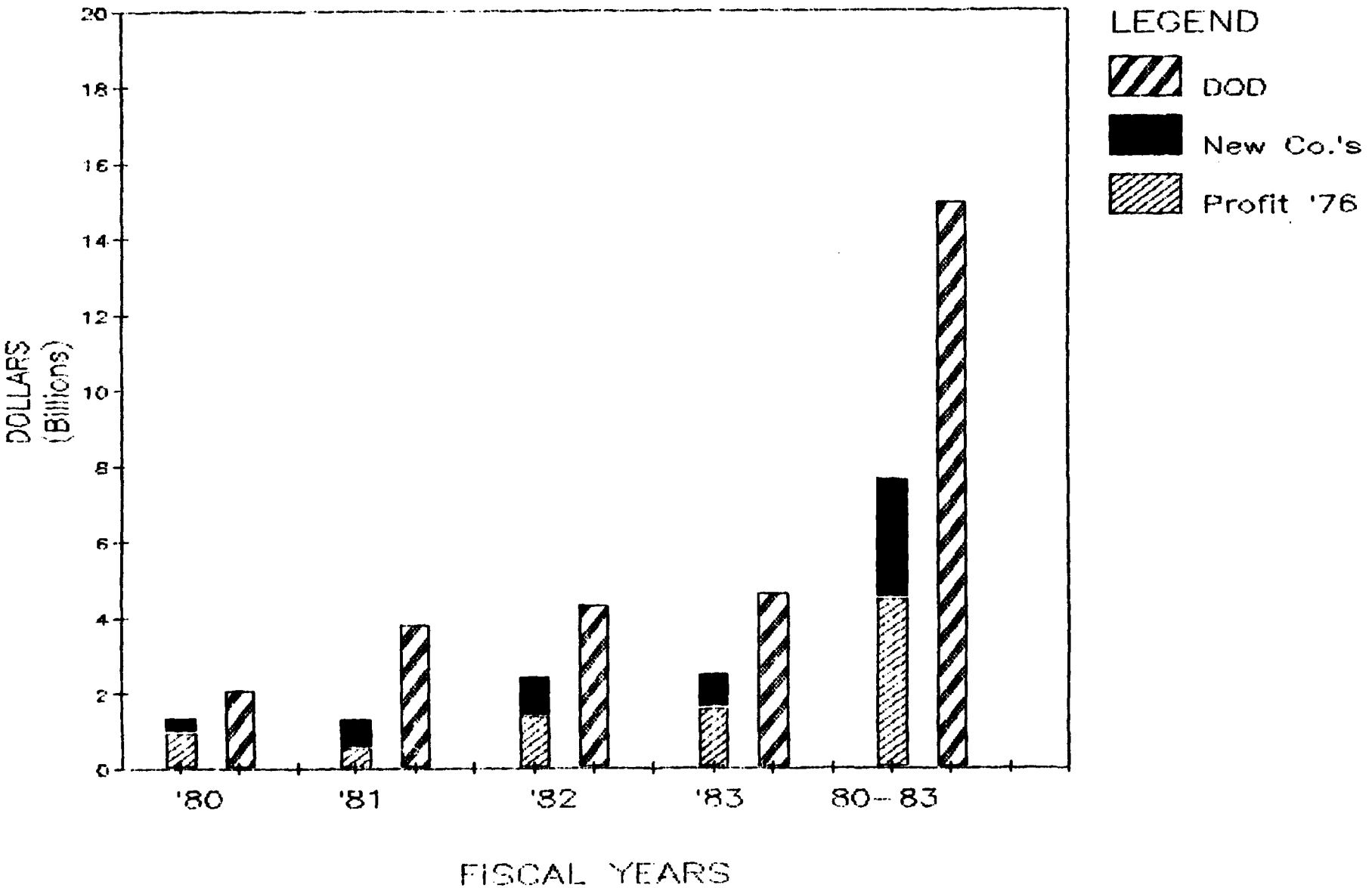


Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Participants vs. Total DOD

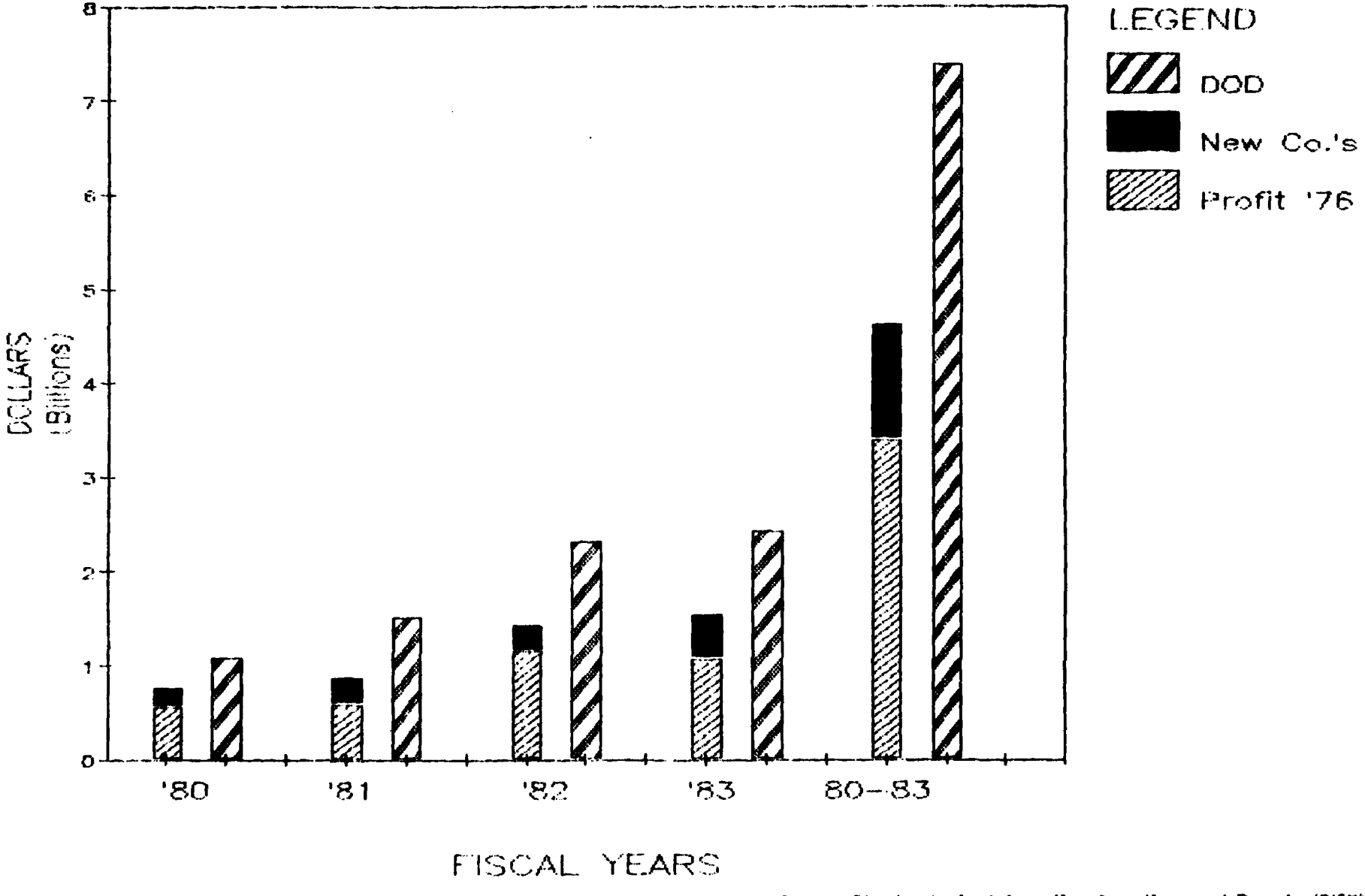
Combat and Non-Combat Vehicles

Military Prime Contract Actions



Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Participants vs. Total DOD
Weapons
Military Prime Contract Actions

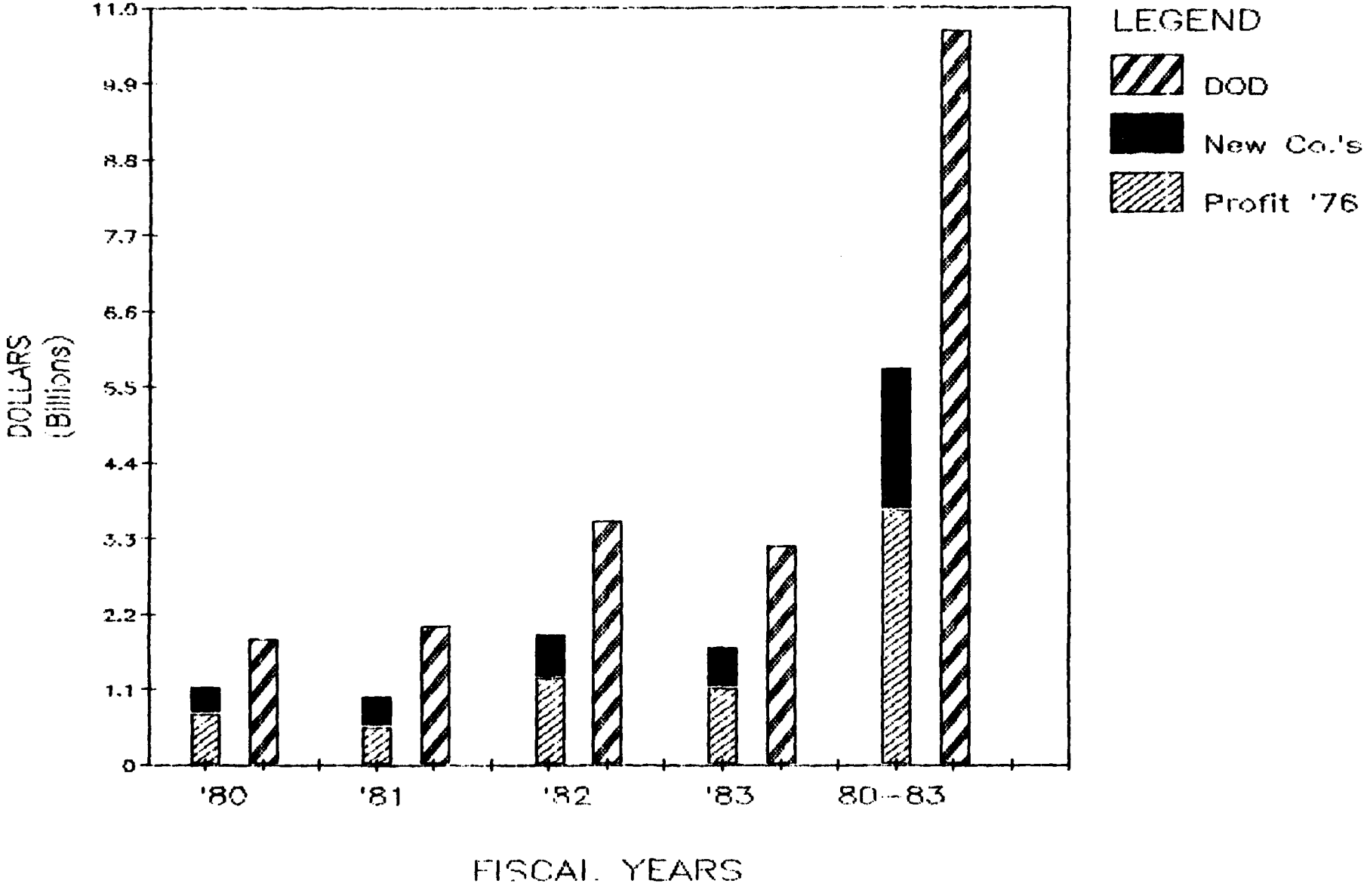


Source: Directorate for Information Operations and Reports (DIOR)

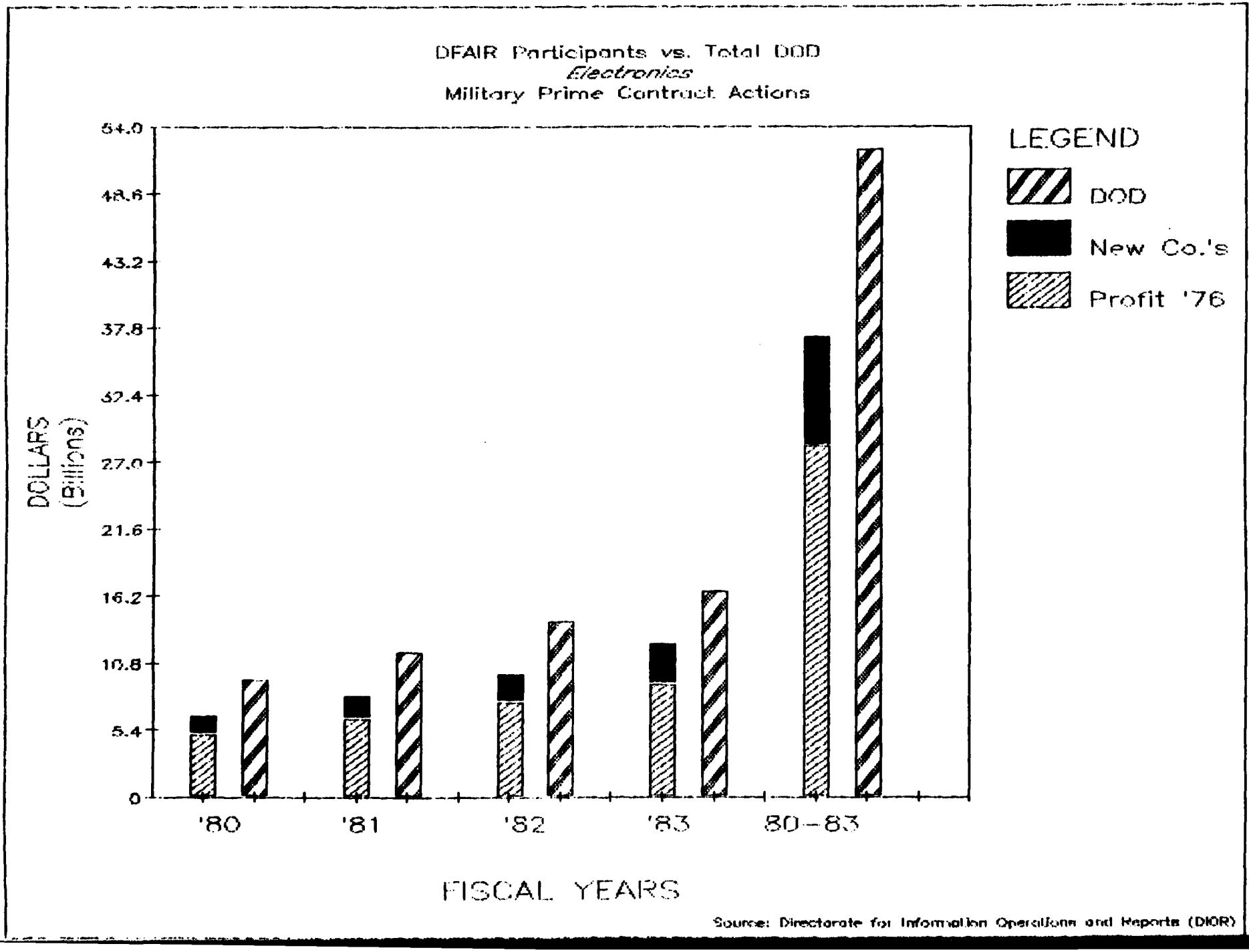
DFAIR Participants vs. Total DOD

Ammunition

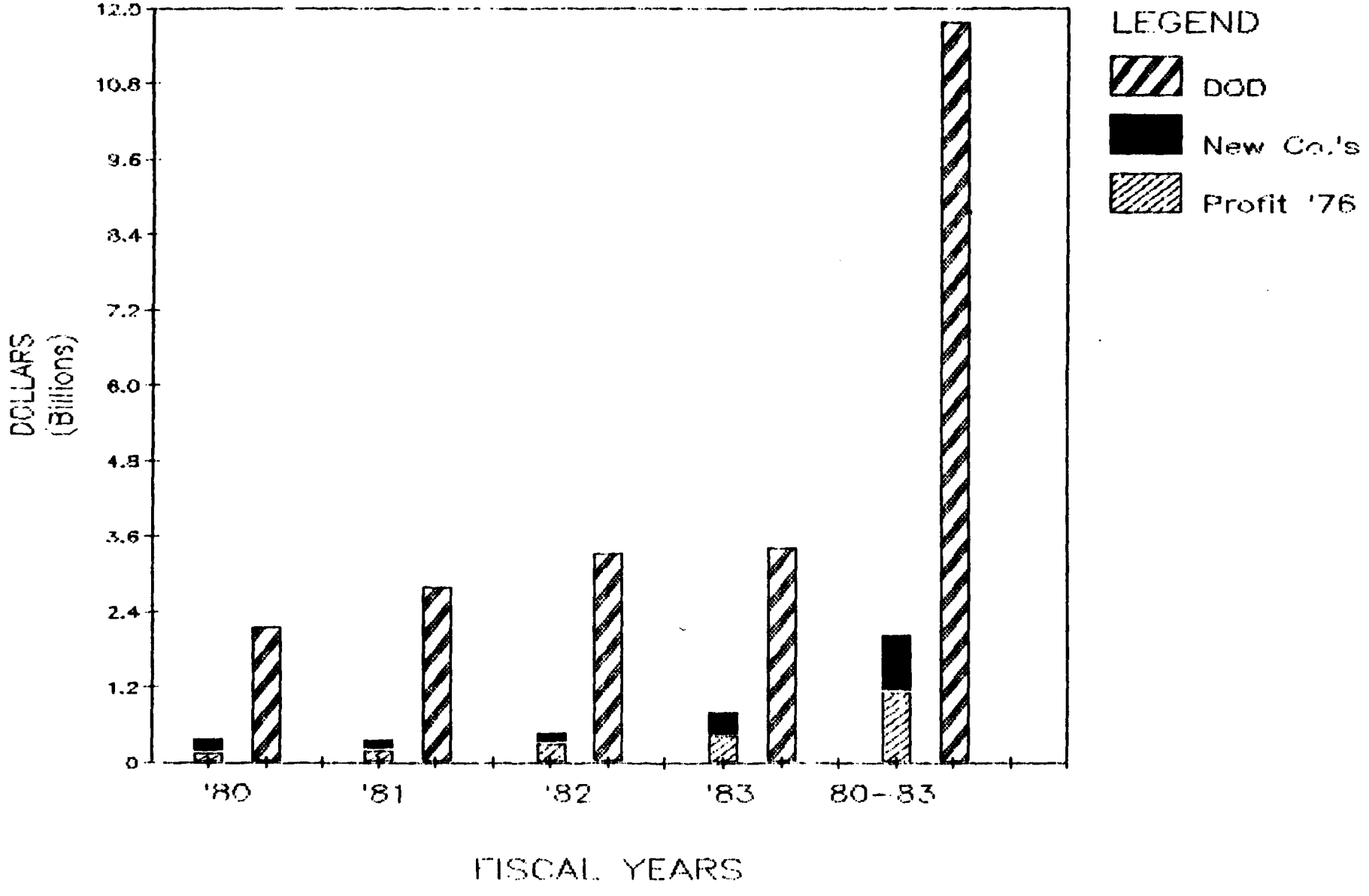
Military Prime Contract Actions



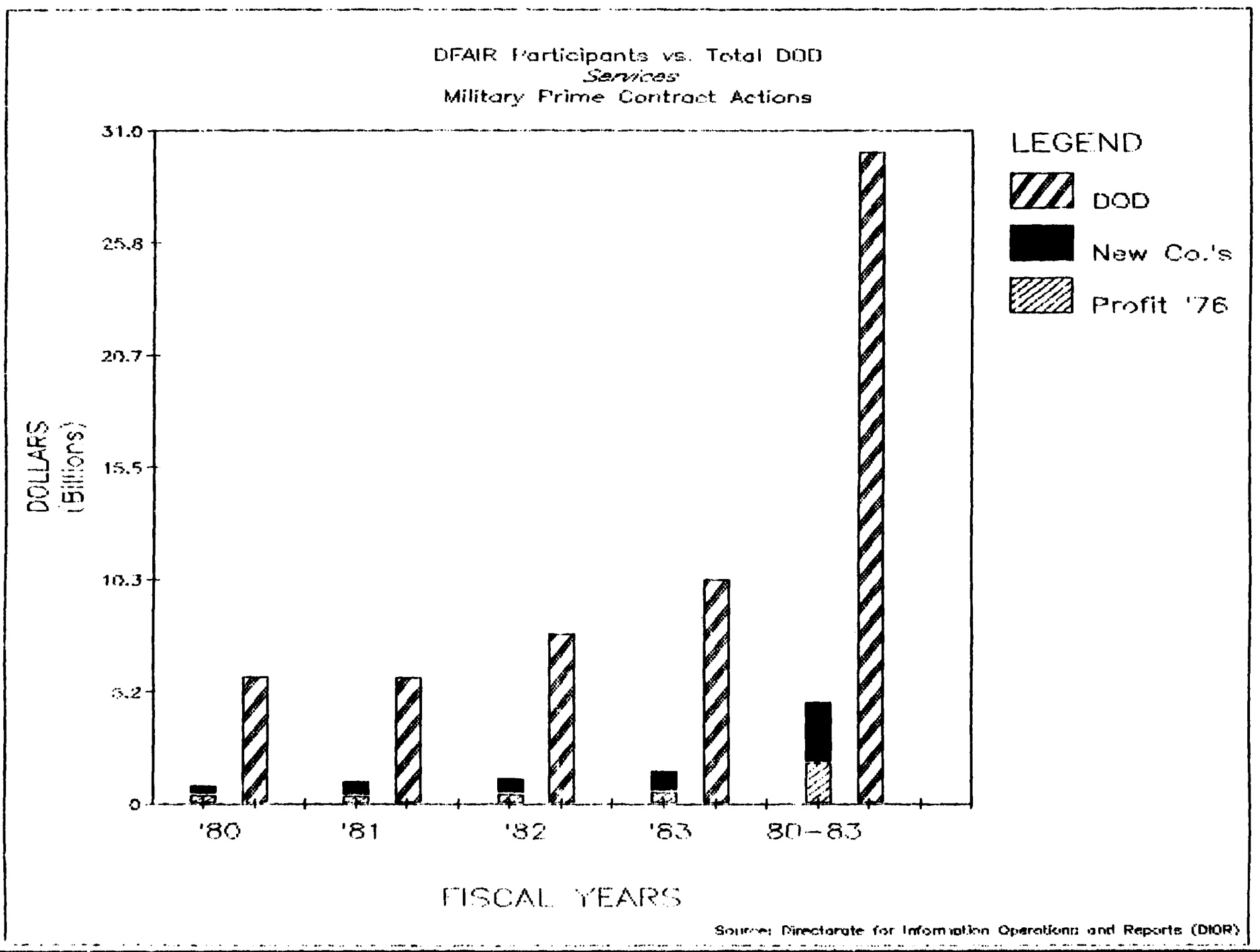
Source: Directorate for Information Operations and Reports (DIOR)


DFAIR Participants vs. Total DOD
Electronics
Military Prime Contract Actions
54.0
48.6
43.2
37.8
32.4
27.0
21.6
16.2
10.8
5.4
0
DOLLARS (Billions)
'80
'81
'82
'83
80-83
FISCAL YEARS
LEGEND
DOD
New Co.'s
Profit '76
Source: Directorate for Information Operations and Reports (DIOR)

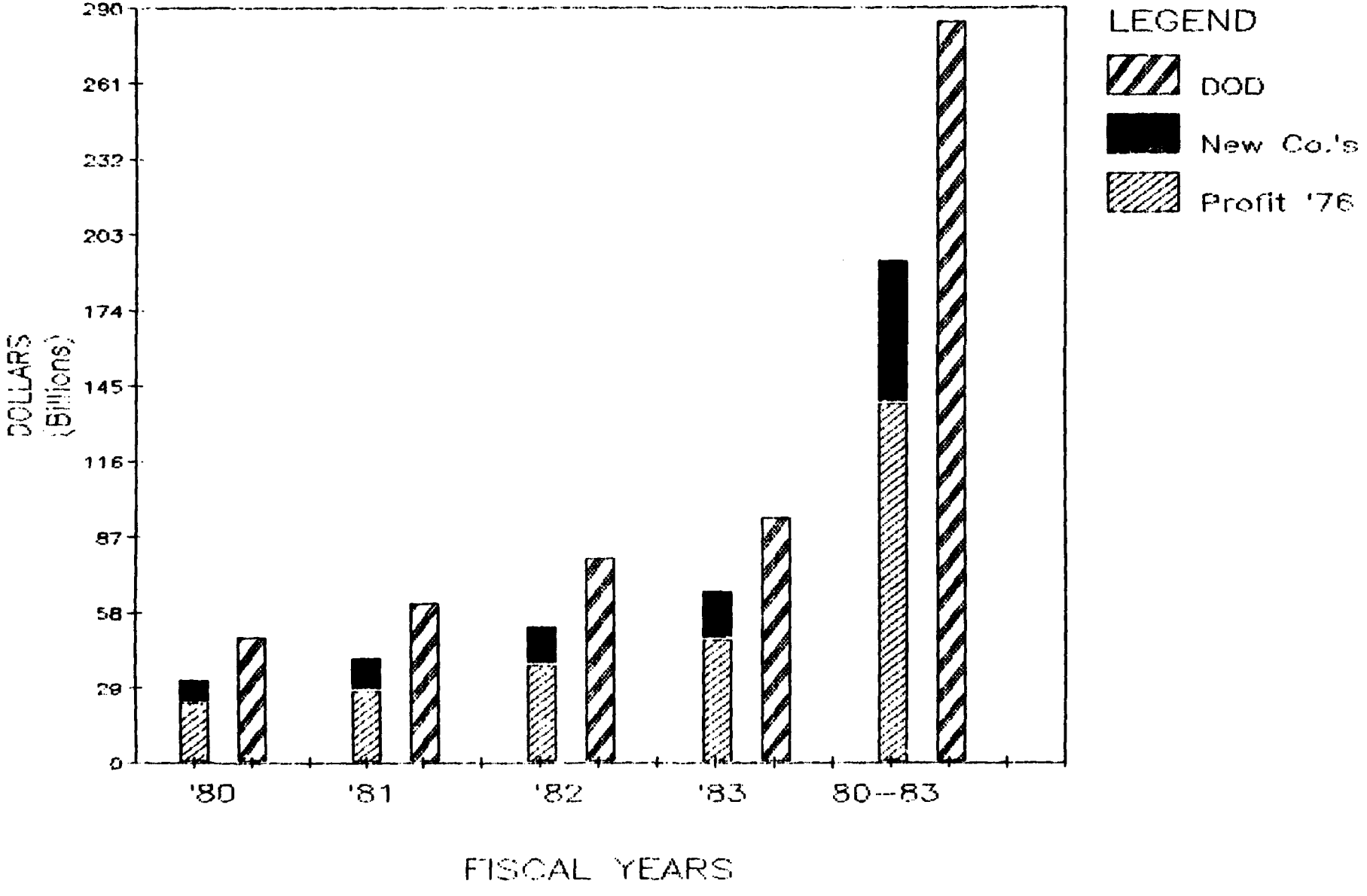
DFAIR Participants vs. Total DOD
Other Equipment
Military Prime Contract Actions



Source: Directorate for Information Operations and Reports (DIOR)


DFAIR Participants vs. Total DOD
Services
Military Prime Contract Actions
31.0
25.8
20.7
15.5
10.3
5.2
0
DOLLARS
(Billions)
'80
'81
'82
'83
80-83
FISCAL YEARS
LEGEND
DOD
New Co.'s
Profit '76
Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Participants vs. Total DOD
All Commodities in Survey
Military Prime Contract Actions



Source: Directorate for Information Operations and Reports (DIOR)

DFAIR PARTICIPANTS CONTRACT ACTIONS

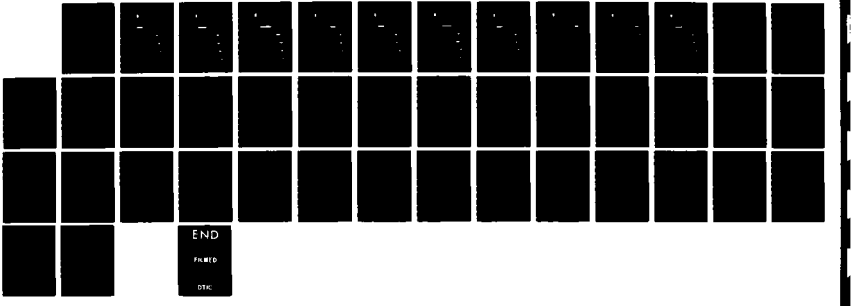
SELECTED COMMODITIES

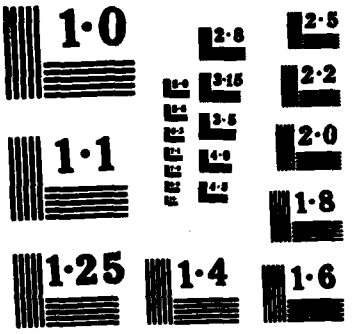
	Aircraft and Aircraft Engines	Missile & Space Systems	Ships	Combat and Non-Combat Vehicles	Weapons	Ammunition	Electronics	Other Equipment	Services	Total
Profit '76 Participants	8,822,643	4,009,876	2,751,462	976,828	569,334	752,151	5,123,797	168,615	449,567	23,624,273
New DFAIR Participants	2,087,414	2,376,315	1,107,073	375,355	205,545	392,926	1,482,913	220,316	412,535	8,660,392
TOTAL DFAIR PARTICIPANTS 1980	10,910,057	6,386,191	3,858,535	1,352,183	774,879	1,145,077	6,606,710	388,931	862,102	32,284,665
% of DFAIR to DOD by product type	87.38%	80.94%	64.79%	63.93%	70.96%	61.44%	68.98%	17.81%	14.62%	65.81%
TOTAL DOD PROCUREMENT - 1980	12,485,263	7,889,975	5,955,170	2,115,094	1,091,943	1,863,660	9,577,770	2,183,196	5,896,879	49,058,950
Profit '76 Participants	10,981,406	5,877,734	3,026,994	553,033	598,769	562,706	6,359,954	210,948	396,735	28,568,281
New DFAIR Participants	2,861,342	3,291,558	2,096,456	782,048	280,079	438,608	1,844,966	153,610	681,073	12,429,740
TOTAL DFAIR PARTICIPANTS 1981	13,842,750	9,169,292	5,123,450	1,335,081	878,848	1,001,314	8,204,920	364,558	1,077,808	40,998,021
% of DFAIR to DOD by product type	83.70%	89.61%	69.30%	34.69%	57.70%	48.75%	69.93%	12.94%	18.44%	66.14%
TOTAL DOD PROCUREMENT - 1981	16,538,058	10,232,085	7,393,249	3,848,480	1,523,192	2,053,861	11,733,011	2,816,743	5,845,754	61,984,433
Profit '76 Participants	14,359,923	7,826,871	3,708,214	1,392,662	1,163,004	1,277,244	7,718,037	316,201	487,425	38,249,581
New DFAIR Participants	3,546,514	3,472,389	2,804,329	1,054,640	272,466	632,000	2,251,021	162,279	735,704	14,931,342
TOTAL DFAIR PARTICIPANTS 1982	17,906,437	11,299,260	6,512,543	2,447,302	1,435,470	1,909,244	9,969,058	478,480	1,223,129	53,180,923
% of DFAIR to DOD by product type	84.73%	88.89%	68.14%	56.18%	61.56%	53.62%	70.10%	14.28%	15.50%	67.22%
TOTAL DOD PROCUREMENT - 1982	21,132,884	12,711,620	9,557,419	4,355,915	2,331,955	3,560,449	14,220,218	3,350,025	7,888,730	79,109,215
Profit '76 Participants	18,491,885	9,352,119	6,287,803	1,581,572	1,082,455	1,133,716	9,152,125	446,261	586,461	48,114,397
New DFAIR Participants	4,456,998	3,682,115	3,968,154	926,846	462,294	596,845	3,205,573	372,750	969,375	18,640,950
TOTAL DFAIR PARTICIPANTS 1983	22,948,883	13,034,234	10,255,957	2,508,418	1,544,749	1,730,561	12,357,698	819,011	1,555,836	66,755,347
% of DFAIR to DOD by product type	87.27%	88.73%	80.01%	53.78%	63.31%	54.09%	74.01%	23.77%	14.96%	70.53%
TOTAL DOD PROCUREMENT - 1983	26,297,322	14,689,528	12,818,867	4,664,359	2,439,970	3,199,429	16,697,137	3,445,738	10,397,348	94,649,698
TOTAL Profit '76 1980-1983	52,655,859	27,066,600	15,774,473	4,504,095	3,413,562	3,725,817	28,353,913	1,142,025	1,920,188	138,556,532
TOTAL New DFAIR 1980-1983	12,952,268	12,822,377	9,976,012	3,138,889	1,220,384	2,060,379	8,784,473	908,955	2,796,687	54,662,424
TOTAL DFAIR 1980-1983	65,608,127	39,888,977	25,750,485	7,642,984	4,633,946	5,786,196	37,138,386	2,050,980	4,716,875	193,218,956
% of DFAIR to DOD by product type	85.81%	87.62%	72.08%	51.01%	62.73%	54.19%	71.11%	17.39%	15.71%	67.84%
TOTAL DOD PROCUREMENT 1980-1983	76,453,527	45,523,208	35,724,705	14,983,848	7,387,060	10,677,399	52,228,136	11,795,702	30,028,711	284,802,296

COVERAGE OF DFAIR SURVEY POPULATION

TO TOTAL DOD PROCUREMENT

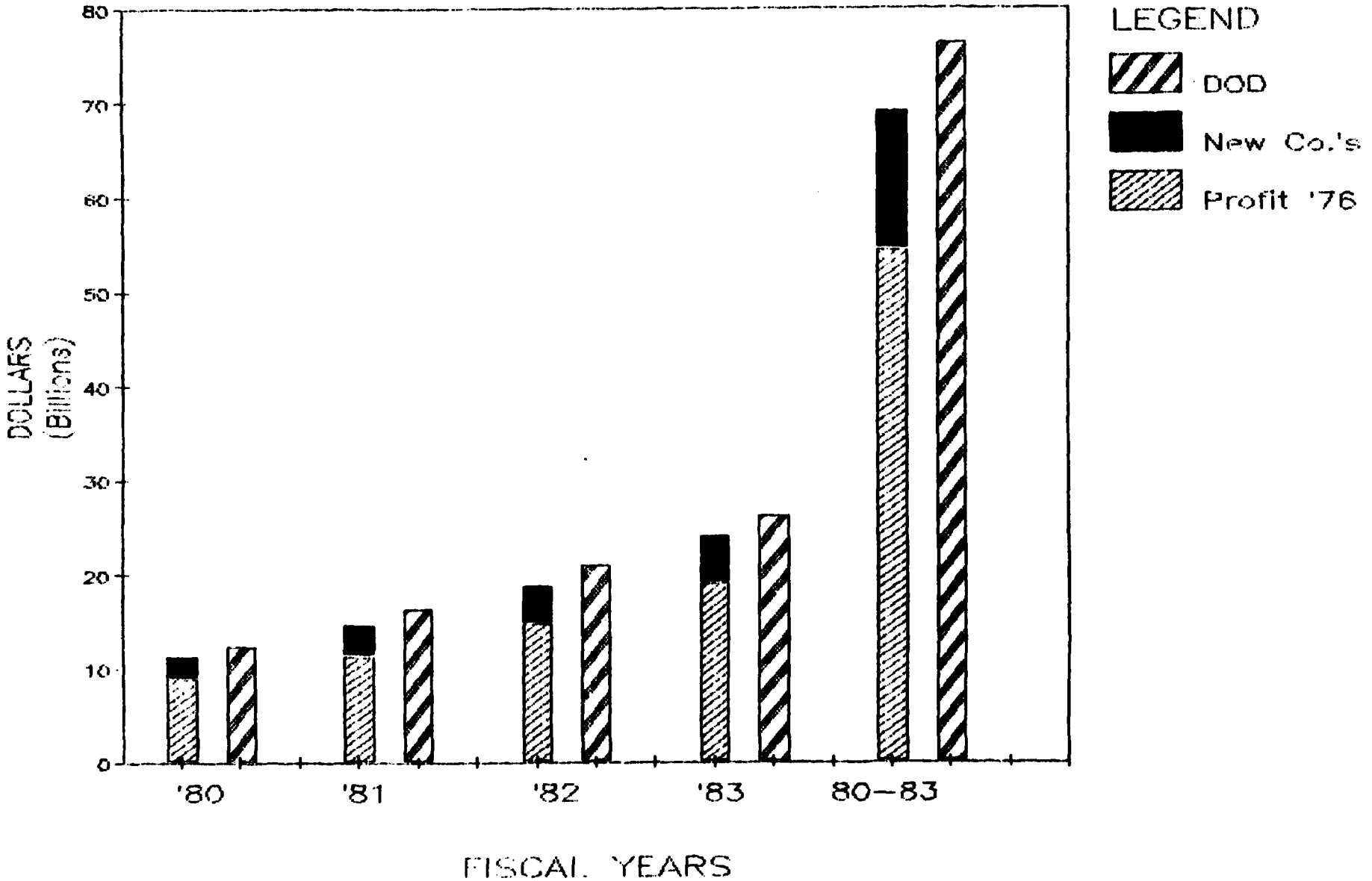
AD-A158 241 DEFENSE FINANCIAL AND INVESTMENT REVIEW APPENDIX 1 2/2
VOLUME 1 TOUCHE ROSS & COMPANY FINANCIAL DATA SURVEY
(U) TOUCHE ROSS AND CO WASHINGTON DC APR 85
UNCLASSIFIED N00600-84-C-2493 F/G 5/3 NL





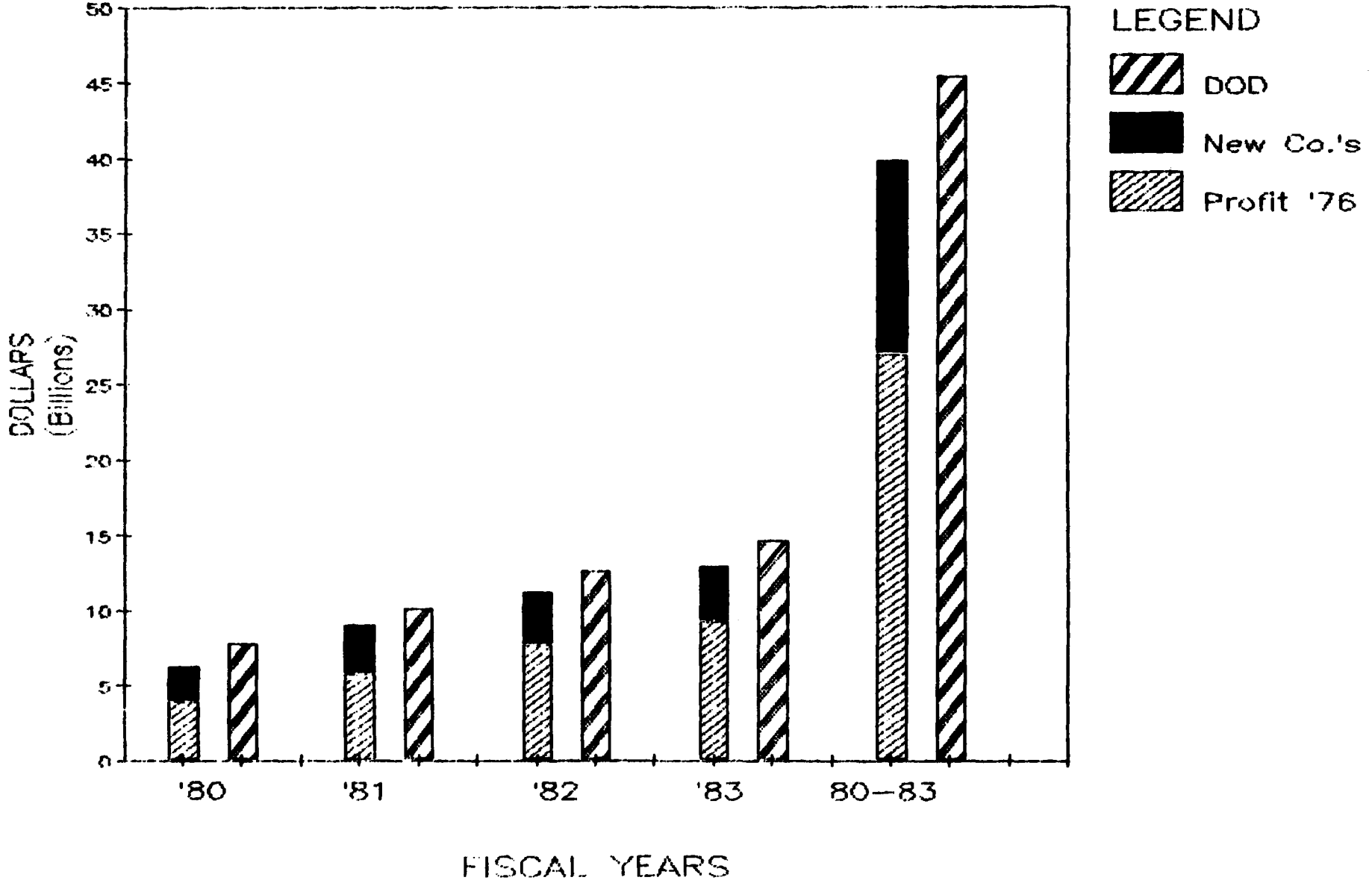
NATIONAL BUREAU OF STANDARDS
MICROCOPY RESOLUTION TEST CHART

DFAIR Survey Population vs. Total DOD
Aircraft and Aircraft Engines
Military Prime Contract Actions



Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Participants vs. Total DOD
Missile and Space Systems
Military Prime Contract Actions

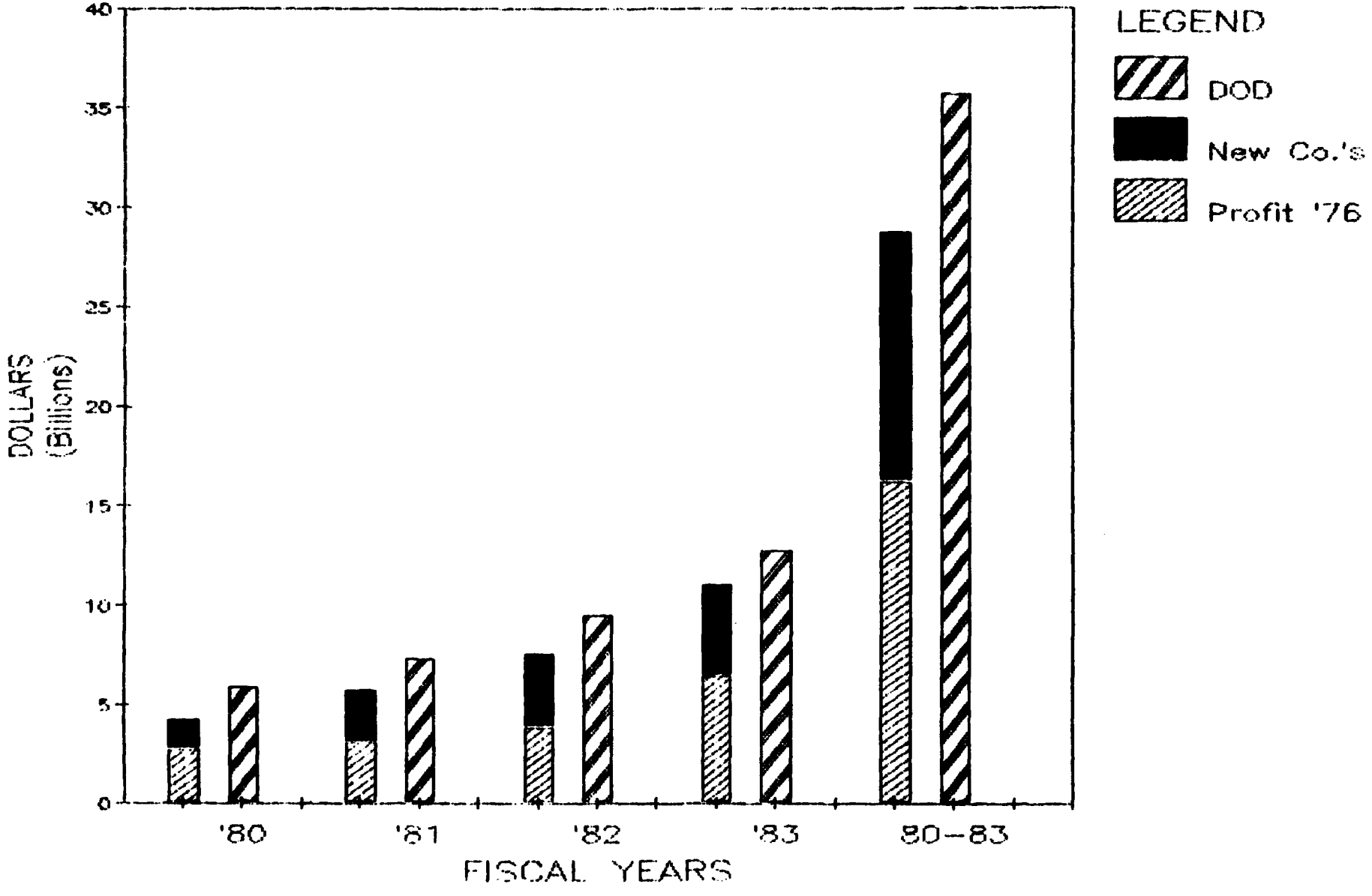


Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Survey Population vs. Total DOD

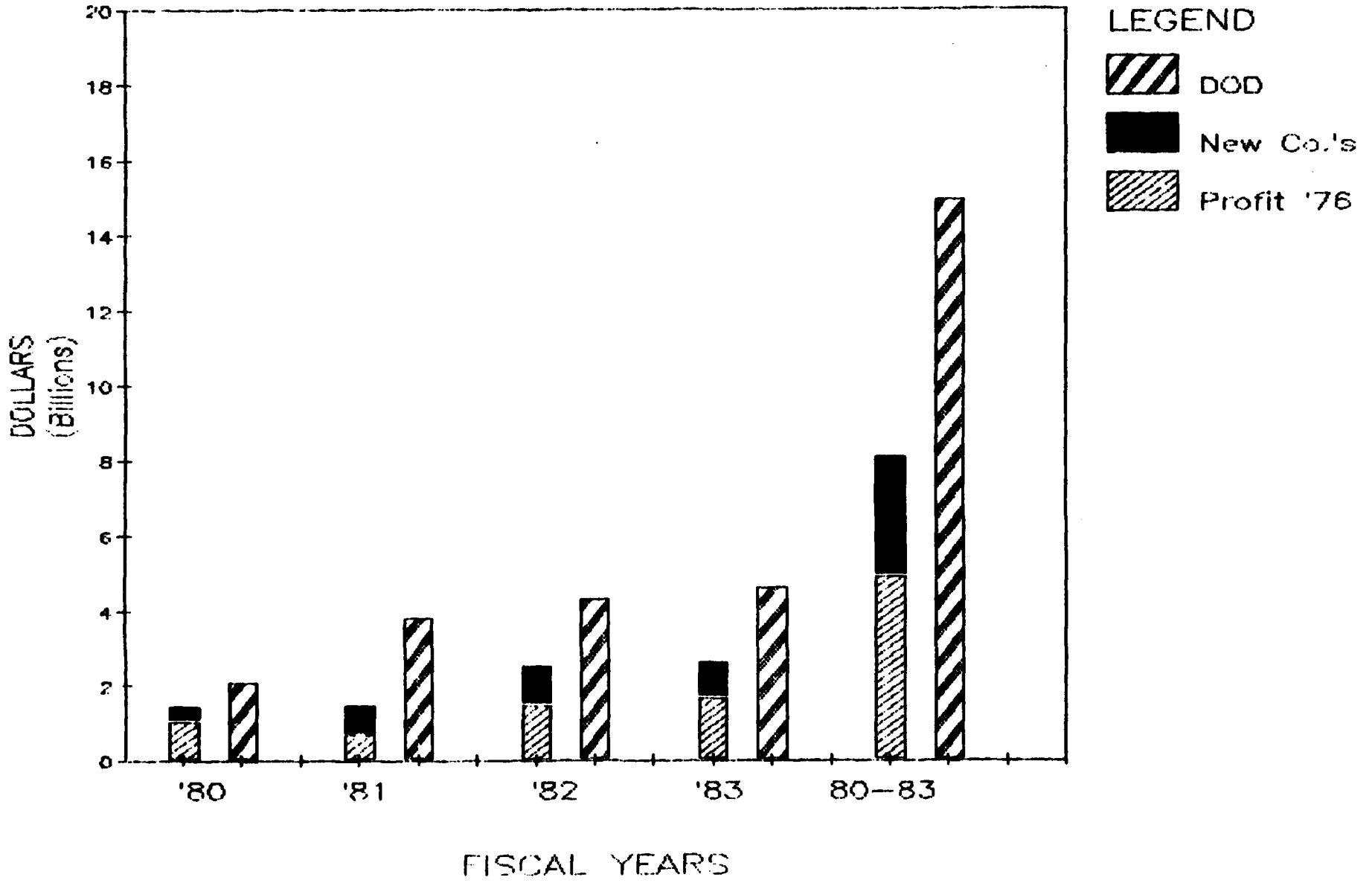
Ships

Military Prime Contract Actions



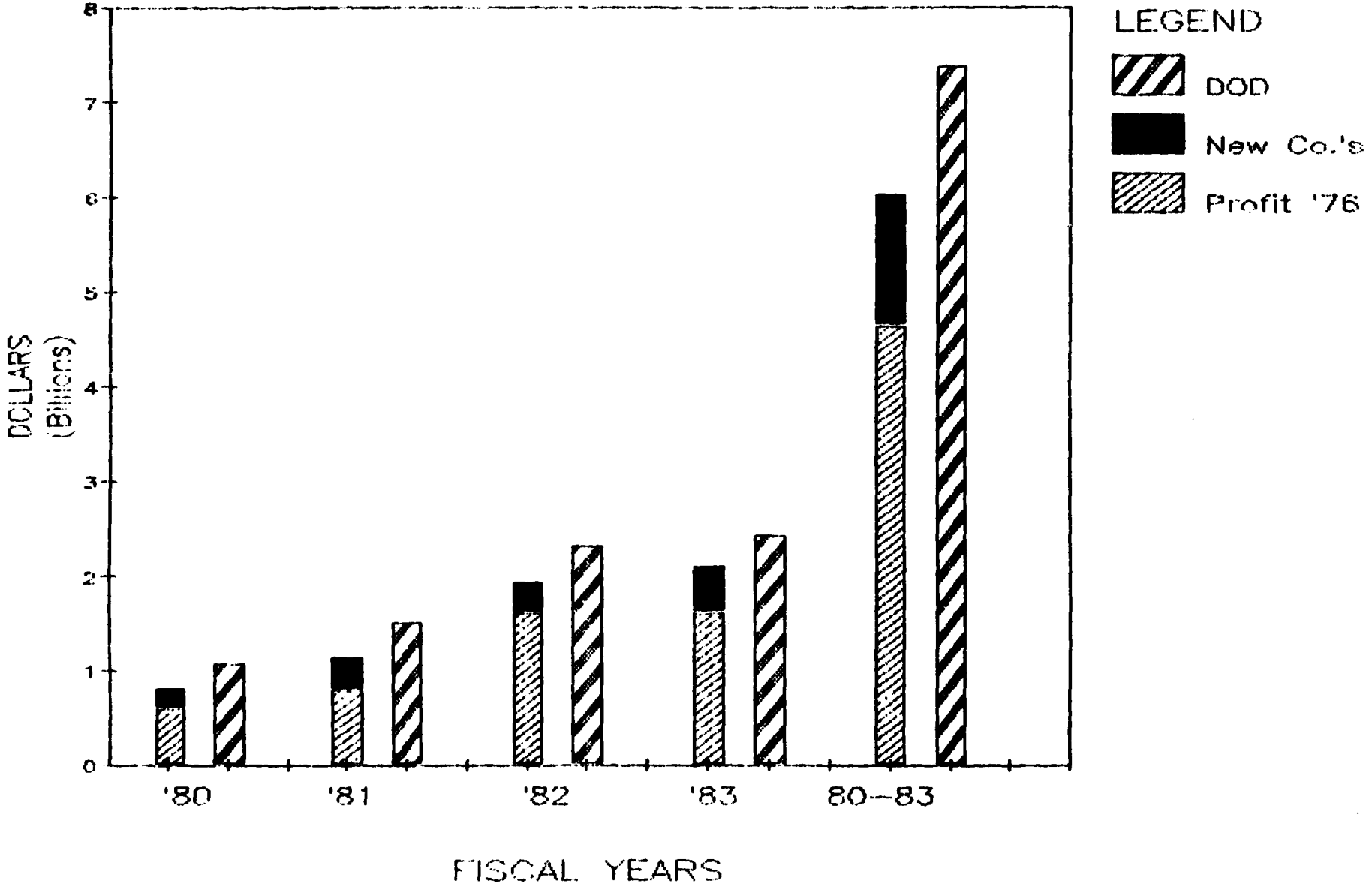
Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Survey Population vs. Total DOD
Combat and Non-Combat Vehicles
Military Prime Contract Actions



Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Survey Population vs. Total DOD
Weapons
Military Prime Contract Actions

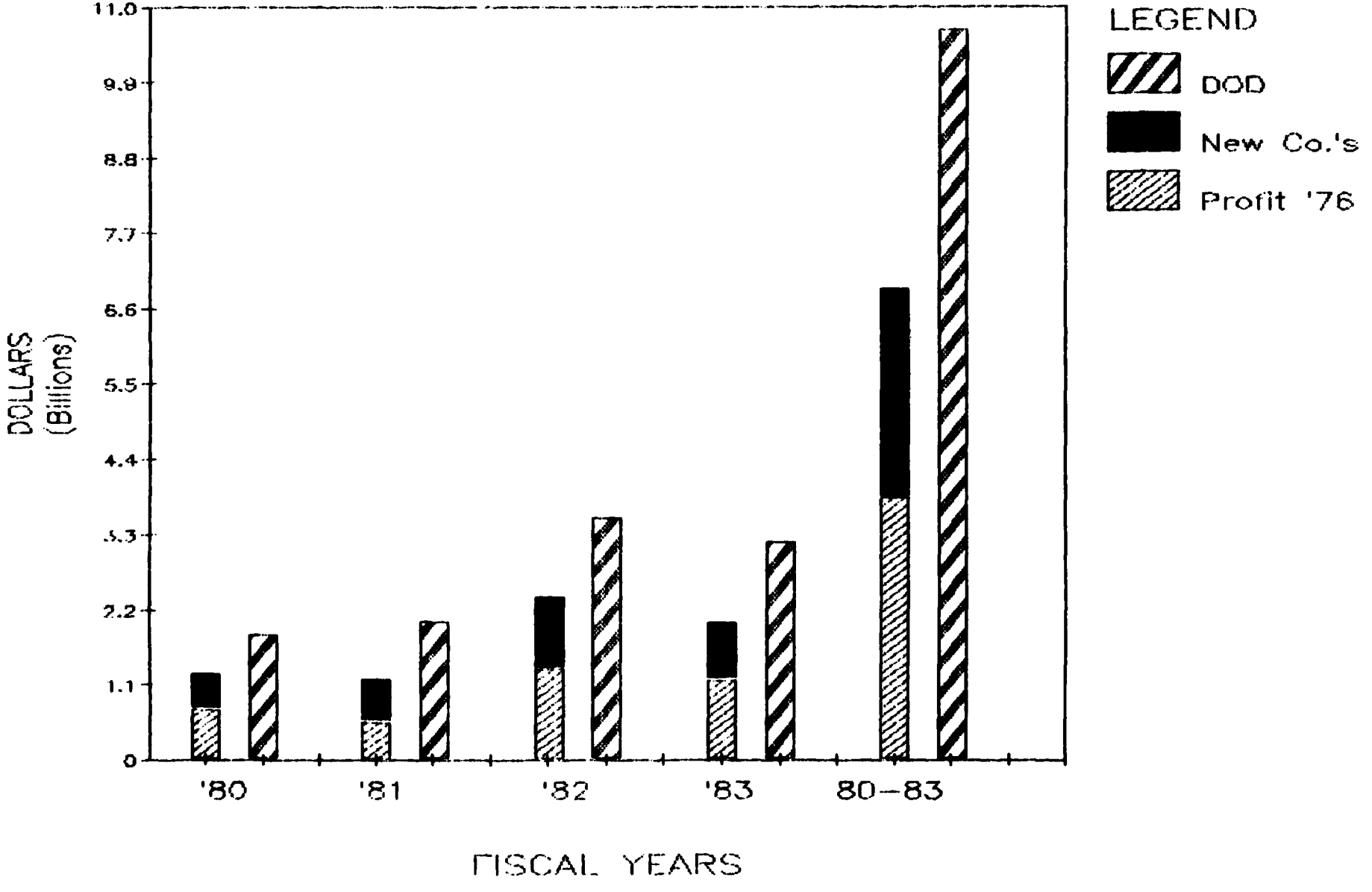


Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Survey Population vs. Total DOD

Ammunition

Military Prime Contract Actions

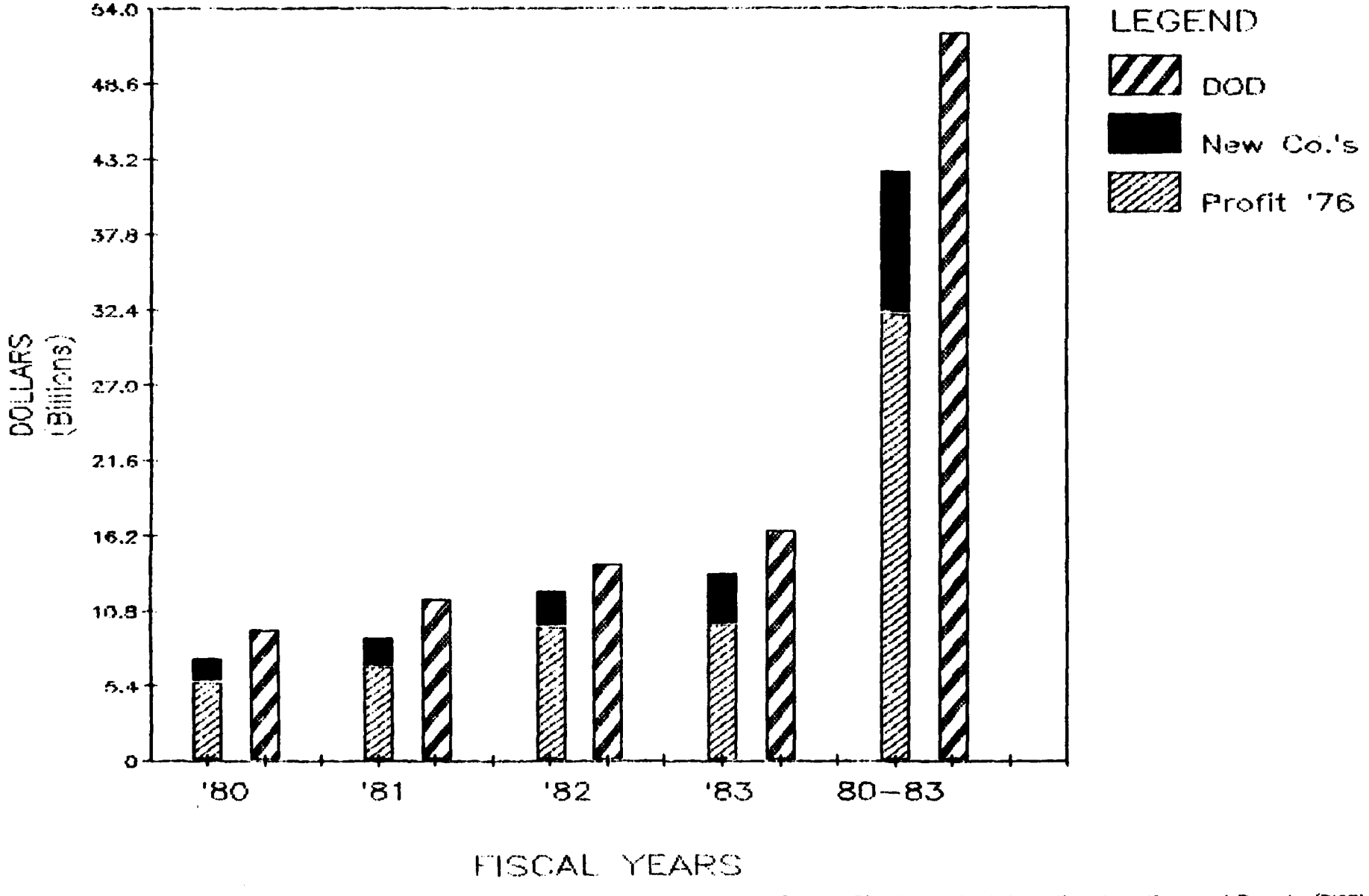


Source: Directorate for Information Operations and Reports (DIOR)

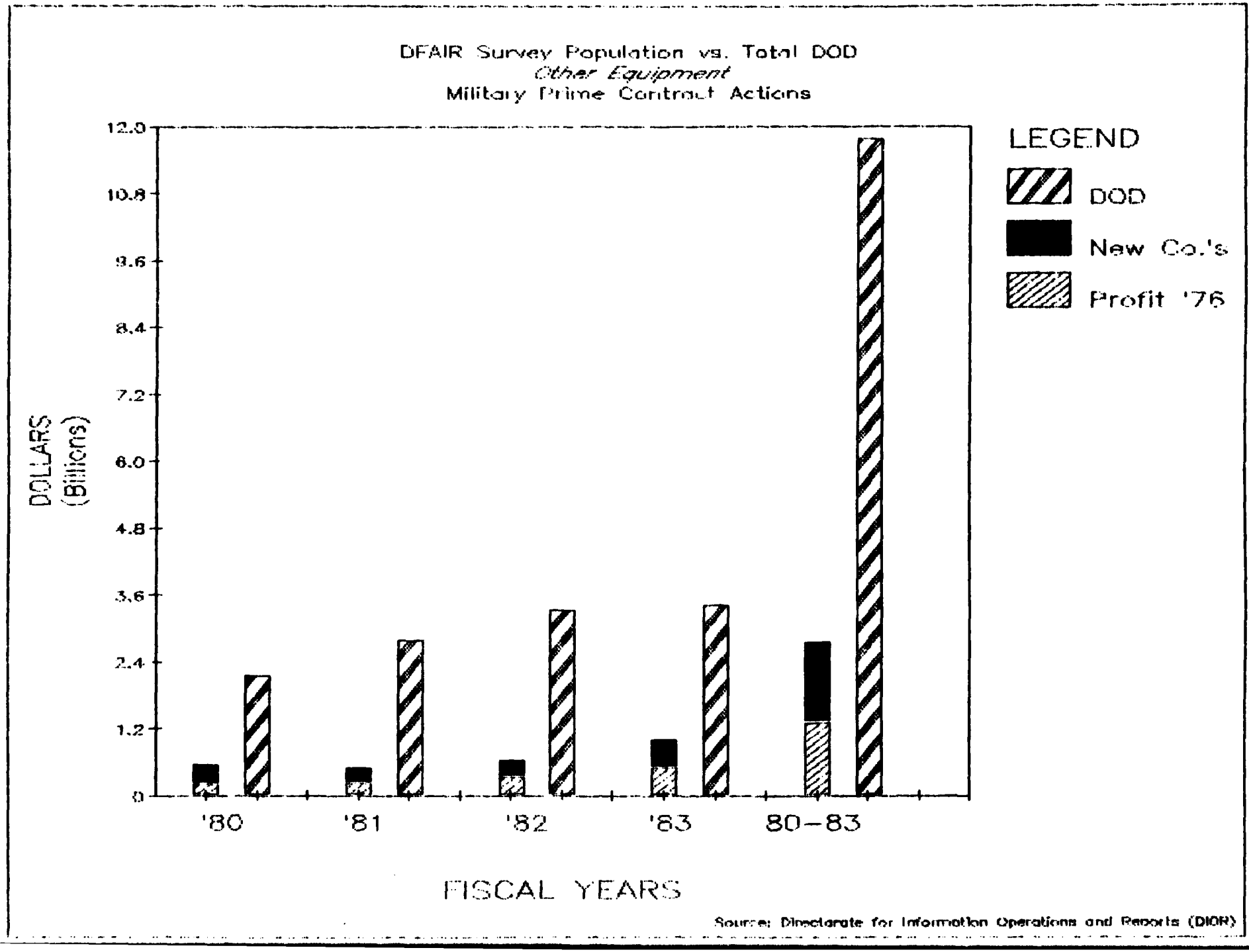
DFAIR Survey Population vs. Total DOD

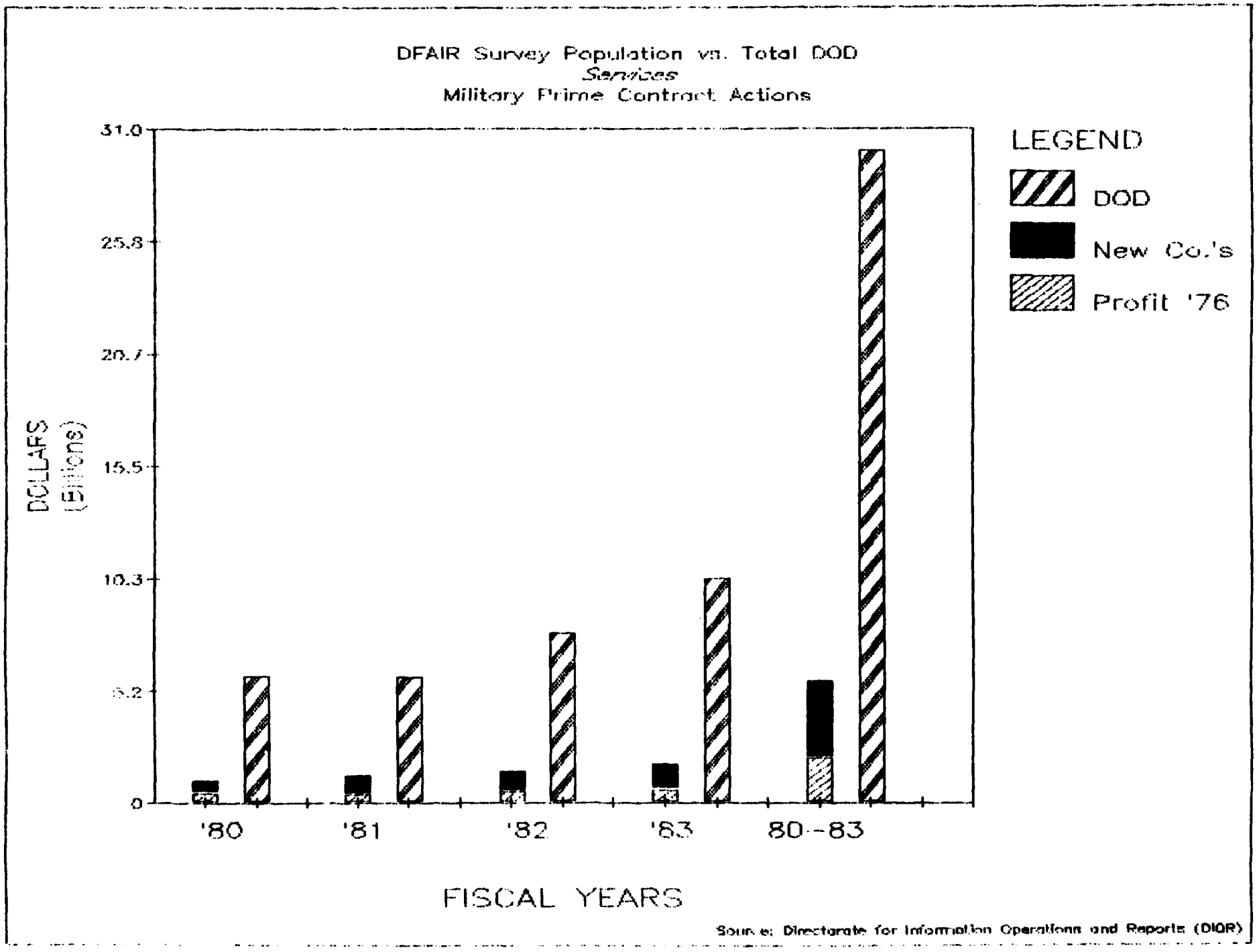
Electronics

Military Prime Contract Actions

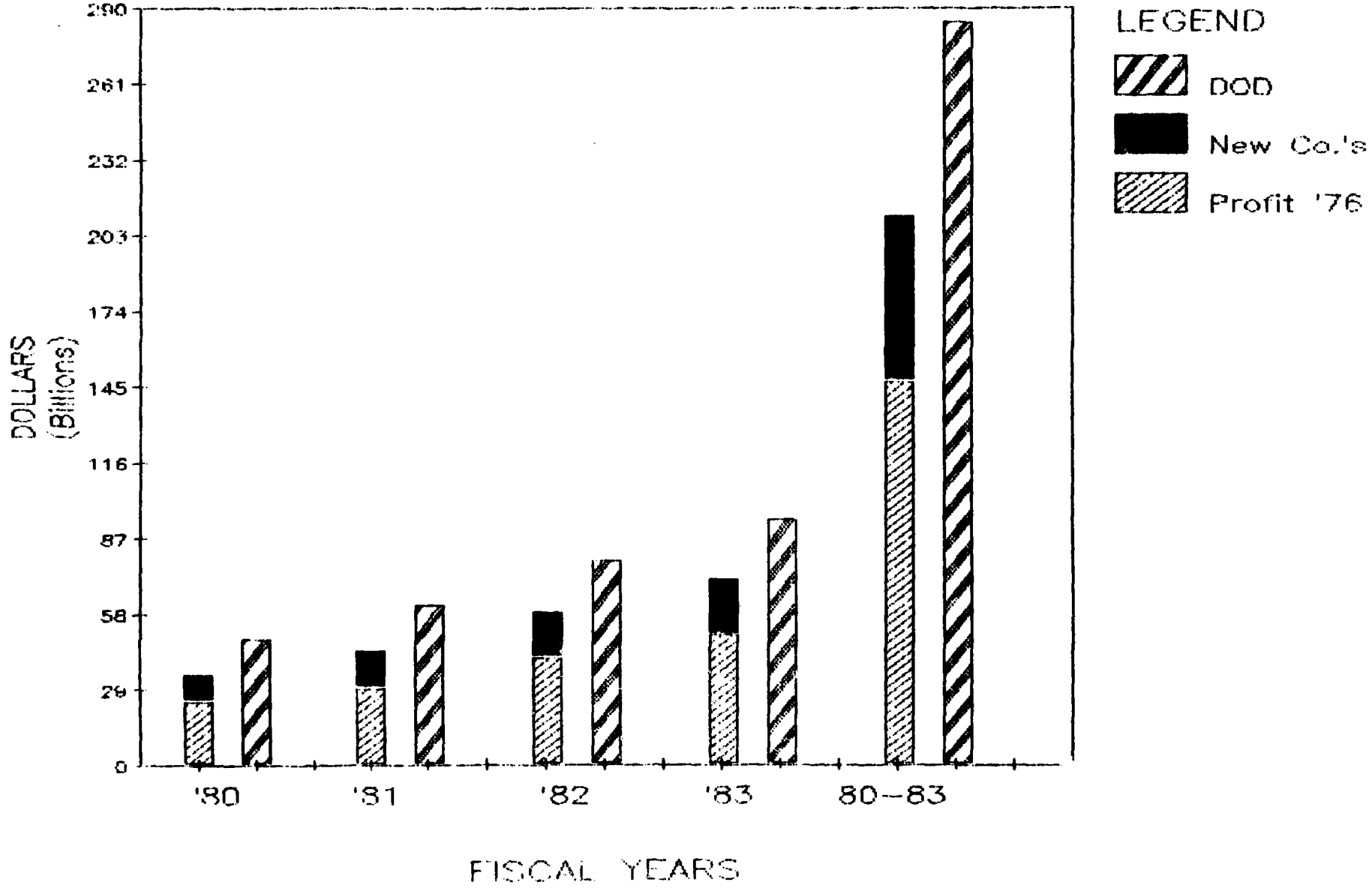


Source: Directorate for Information Operations and Reports (DIOR)


DFAIR Survey Population vs. Total DOD
Other Equipment
Military Prime Contract Actions
DOLLARS (Billions)
12.0
10.8
9.6
8.4
7.2
6.0
4.8
3.6
2.4
1.2
0
'80
'81
'82
'83
80-83
FISCAL YEARS
LEGEND
DOD
New Co.'s
Profit '76
Source: Directorate for Information Operations and Reports (DIOR)


DFAIR Survey Population vs. Total DOD
Services
Military Prime Contract Actions
31.0
25.8
20.7
15.5
10.3
5.2
0
DOLLARS (Billions)
'80
'81
'82
'83
80-83
FISCAL YEARS
LEGEND
DOD
New Co.'s
Profit '76
Source: Directorate for Information Operations and Reports (DIOR)

DFAIR Survey Population vs. Total DOD
All Commodities in Survey
Military Prime Contract Actions



Source: Directorate for Information Operations and Reports (DIOR)

DFAIR SURVEY POPULATION CONTRACT ACTIONS

SELECTED COMMODITIES

	Aircraft and Aircraft Engines	Missile & Space Systems	Ships	Combat and Non-Combat Vehicles	Weapons	Ammunition	Electronics	Other Equipment	Services	Total
Profit '76 Participants	9,032,929	4,166,872	2,794,133	1,055,105	602,180	752,566	5,722,384	215,274	464,781	24,826,224
New DFAIR Companies	2,348,760	2,454,952	1,502,972	390,435	222,250	532,755	1,732,090	369,150	555,221	10,106,605
TOTAL DFAIR SURVEY POPULATION 1980	11,381,689	6,621,824	4,297,105	1,445,560	824,430	1,285,321	7,454,474	584,424	1,040,002	34,934,829
% of DFAIR to DOD for commodity	91.16%	83.93%	72.16%	68.34%	75.50%	68.97%	77.83%	26.77%	17.64%	71.21%
TOTAL DOD PROCUREMENT - 1980	12,485,263	7,889,975	5,955,170	2,115,094	1,091,943	1,863,660	9,577,770	2,183,196	5,896,879	49,058,950
Profit '76 Participants	11,415,119	6,025,306	3,122,244	710,272	802,525	565,762	6,843,259	240,429	430,770	30,155,686
New DFAIR Companies	3,279,736	3,399,605	2,628,289	789,353	353,236	623,342	2,144,818	272,390	870,841	14,361,610
TOTAL DFAIR SURVEY POPULATION 1981	14,694,855	9,424,911	5,750,533	1,499,625	1,155,761	1,189,104	8,988,077	512,819	1,301,611	44,517,296
% of DFAIR to DOD for commodity	88.85%	92.11%	77.78%	38.97%	75.88%	57.90%	76.61%	18.21%	22.27%	71.82%
TOTAL DOD PROCUREMENT - 1981	16,538,058	10,232,085	7,393,249	3,848,480	1,523,192	2,053,861	11,733,011	2,816,743	5,845,754	61,984,433
Profit '76 Participants	14,845,848	8,048,164	3,853,453	1,488,937	1,619,096	1,345,686	9,727,358	352,410	562,555	41,843,507
New DFAIR Companies	4,067,889	3,556,700	3,765,166	1,061,475	326,490	1,060,562	2,601,365	291,957	927,616	17,659,220
TOTAL DFAIR SURVEY POPULATION 1982	18,913,737	11,604,864	7,618,619	2,550,412	1,945,586	2,406,248	12,328,723	644,367	1,490,171	59,502,727
% of DFAIR to DOD for commodity	89.50%	91.29%	79.71%	58.55%	83.43%	67.58%	86.70%	19.23%	18.89%	75.22%
TOTAL DOD PROCUREMENT - 1982	21,132,884	12,711,620	9,557,419	4,355,915	2,331,955	3,560,449	14,220,218	3,350,025	7,888,730	79,109,215
Profit '76 Participants	19,184,941	9,618,519	6,466,896	1,681,964	1,630,564	1,182,176	9,870,941	514,823	634,699	50,785,523
New DFAIR Companies	5,039,995	3,810,810	4,625,480	960,546	487,731	850,805	3,710,560	513,673	1,186,473	21,186,073
TOTAL DFAIR SURVEY POPULATION 1983	24,224,936	13,429,329	11,092,376	2,642,510	2,118,295	2,032,981	13,581,501	1,028,496	1,821,172	71,971,596
% of DFAIR to DOD for commodity	92.12%	91.42%	86.53%	56.65%	86.82%	63.54%	81.34%	29.85%	17.52%	76.04%
TOTAL DOD PROCUREMENT - 1983	26,297,322	14,689,528	12,818,867	4,664,359	2,439,970	3,199,429	16,697,137	3,445,738	10,397,348	94,649,698
TOTAL Profit '76 1980-1983	54,478,837	27,856,861	16,236,726	4,936,278	4,654,365	3,846,190	32,163,942	1,322,936	2,112,805	147,610,940
TOTAL New DFAIR 1980-1983	14,736,380	13,222,067	12,521,907	3,201,829	1,389,707	3,067,464	10,188,833	1,447,170	3,540,151	63,315,508
TOTAL DFAIR 1980-1983	69,215,217	41,080,928	28,758,633	8,138,107	6,044,072	6,913,654	42,352,775	2,770,106	5,652,956	210,926,448
% of DFAIR to DOD for commodity	90.57%	90.24%	80.50%	54.31%	81.82%	64.75%	81.09%	23.48%	18.83%	74.06%
TOTAL DOD PROCUREMENT 1980-1983	76,453,527	45,523,208	35,724,705	14,983,846	7,387,060	10,677,399	52,228,136	11,795,702	30,028,711	284,802,296

APPENDIX

II. REVIEW AND EDIT PROCEDURES

1984 DOD Profitability Study

I. Manual Review Procedures

1. Record the receipt of the submitted schedules by providing values for the following data elements that appear on the Data Review Form (DRF).

   - RESPONDENT
   - DATE RECEIVED
   - DATE EDITED
   - EDITED BY

   Also record the date of receipt on the Respondent Status Report.

2. COMPARE NUMBER OF SEGMENTS SUBMITTED BY RESPONDENT TO NUMBER REPORTED ON THE CONTRACTOR/SEGMENT IDENTIFICATION FORM.

   a. If the numbers are equal, mark line 1a of the DRF.

   b. If the numbers are not equal, mark line 1a of the DRF.

3. ENSURE THAT RESPONDENT HAS SUBMITTED THE APPROPRIATE SCHEDULES.

   The respondent is to submit the below identified schedules for each reported segment. Also provided are the number of pages which comprise each schedule and the fiscal years for which each schedule is to be completed:

	PAGES	YEARS	TOTAL PAGES
Schedule IA	2	1 (1983)	2
Schedule IB	2	2 (1981-82)	4
Schedule IC	1	6 (1975-80)	6
Schedule II	3	9 (1975-83)	27
Total Pages			39

   a. Identify any missing or incomplete schedule(s). Determine the years to which the schedule(s) pertain and the missing page number(s).

   b. If the submitted schedule is complete as to years and pages, place a 'X' in the appropriate space provided in Section 2 of the DRF.

c. If any schedule is incomplete (as to years and/or pages), identify the missing component in the spaces provided in Section 2 of the DRF.

4. REVIEW THE SUBMITTED SCHEDULES FOR COMPLETENESS OF DATA ELEMENT VALUES.

a. Values must be provided for the following data elements:

- CORPORATION #
- SEGMENT #
- PRODUCT TYPE 1 CODE
- % SEGMENT SALES
- PRODUCT TYPE 2 CODE
- % SEGMENT SALES
- NO. OF EMPLOYEES (where applicable)
- FISCAL YEAR (where applicable)

b. Values must also be provided for all data elements that appear on the following schedule/line number combinations:

- Schedule IA - Lines 01-21
- Schedule IB - Lines 01, 05-21
- Schedule IC - Lines 01, 05, 09-12, 15-17
- Schedule II - Lines 01-45 (for FY 1983)
- Schedule II - Lines 01-18, 22-27, 31-36, 38-45 (for FY 1981-82)
- Schedule II - Lines 01-18, 22-27, 31-36, 38, 43-45 (for FY 1975-80)

c. Determine any missing data elements and identify in the space provided in Section 3 of the DRF.

5. REVIEW DATA COLLECTION SCHEDULES FOR FOOTNOTES.

a. Compare the number of supporting schedules/explanations (attached to the schedule) to the number of marked boxes that appear in the Footnote column.

b. Match each supporting schedule/explanation to the corresponding line of the data collection schedule.

c. If the procedures in steps a and b above indicate missing data, provide an explanation in Section 4 of the DRF.

6. REVIEW CPA LETTER.

a. Review the submitted package for the CPA review letter. If the CPA review letter is located, mark line 5a of the DRF.

b. If no CPA review letter can be locate, mark line 5b of the DRF.

c. Review the CPA letter for any qualifications or deviations. Use line 5c of the DRF to document the results of your review.

Respondent # _____

Date Received _____
Date Edited _____
Edited By _____
Reviewed By _____

1984 Department of Defense (DoD)
Profitability Study

Data Review Form

1. COMPARE NUMBER OF SEGMENTS SUBMITTED BY RESPONDENT TO NUMBER REPORTED ON CONTRACTOR/SEGMENT IDENTIFICATION FORM.

   1a. Yes, segment numbers are equal _____
   Submitted ___ Reported ___

   1b. No, segment numbers not equal _____
   Submitted ___ Reported ___

2. ENSURE THAT RESPONDENT HAS SUBMITEED THE APPROPRIATE SCHEDULES.

Schedule ID	Complete	Incomplete	# Pages
Schedule IA	_____	_____	_____
Schedule IB	_____	_____	_____
Schedule IC	_____	_____	_____
Schedule II	_____	_____	_____

3. REVIEW THE SUBMITTED SCHEDULES FOR COMPLETENESS OF DATE ELEMENT VALUES.

   Use this space to identify missing data elements:

Respondent # _____

Date Received _____
Date Edited _____
Edited By _____
Reviewed By _____

4. REVIEW DATA COLLECTION SCHEDULES FOR FOOTNOTES.

Use this space to identify all irregularities with footnoted schedules/explanations.

5. REVIEW CPA REVIEW LETTER.

	Yes	No
5a. CPA Letter Present	_____	_____
5b. CPA Letter not Present	_____	_____
5c. Qualifications and/or deviations in CPA Letter	_____	_____

If response to 5c is yes, use below space to summarize the qualifications/deviations.

1984 DOD Profitability Study

II. Automated Edits Procedures

Introduction

All data submitted by the contractor for use in the 1984 Department of Defense (DOD) Profitability Study will undergo a series of automated edits. The edits will include:

- Recalculation of reported amounts to determine mathematical accuracy;
- Calculation of financial ratios to determine consistency of applied allocation procedures;
- Calculation and comparison of selected financial ratios to identify operating trends; and
- Review of reported amounts for reasonableness.

Edits will be performed on the data of individual contractors as well as on the aggregate data of contractors sharing common denominators (i.e., identical product types). In conducting these edits, Touche Ross & Co. will be able to identify and address deviations from identified trends.

Recalculation of Reported Amounts to Determine Mathematical Accuracy of Submitted Data

As it is being entered into the database, data will be reviewed for mathematical accuracy. The individual edits which will comprise this review are provided on a schedule by schedule basis.

Schedule IA - Selected Income Statement Items - FY 1983

Total Operating Costs (Line 05)

- Generated In-house (Line 03) + Purch. Direct Mat'l (Line 04)

Total Other Costs (Lines 09)

- State and Local Income Taxes (Line 07) + Other Expense (Line 08)

Sales Less Allowable Costs (Line 10)

- Sales (Line 01) - Total Operating Cost (Line 05) - Total Other Costs (Line 09)

Total Unallowable Costs (Line 16)

- Interest (Line 12) + IR&D/B&P Over Ceiling (Line 13) + Specified Unallowable Cost (Line 14) + All Other (Line 15)

Profit (Line 17)

- Sales Less Allowable Costs (Line 10) - Total Unallowable Costs (Line 16)

Total Inputed COM (Line 19)

- Amount Eligible (Line 20) + Amount Not Eligible (Line 21)

The mathematical edits described will be performed for each of the ten columns that comprise Schedule IA.

Schedule IB - Selected Income Statement Items (FY 1981-82)

Total Other Costs (Line 09)

- State and Local Income Taxes (Line 07) + Other Expense (Line 08)

Sales Less Allowable Costs (Line 10)

- Sales (Line 01) - Total Operating Cost (Line 05) - Total Other Costs (Line 09)

Total Unallowable Costs (Line 16)

- Interest (Line 12) + IR&D/B & P Overceiling (Line 13) + Specified Unallowable Cost (Line 14) + All Other (Line 15)

Profit (Line 17)

- Sales Less Allowable Costs (Line 10) - Total Unallowable Costs (Line 16)

Total Inputed COM (Lines 18-21)

- Amount Eligible (Line 20) + Amount Not Eligible (Line 21)

The mathematical edits described will be performed for each of the ten columns that comprise Schedule IB.

Schedule IC - Selected Income Statement Items (FY 1975-80)

Sales Less Allowable Costs (Line 10)

- Sales (Line 01) - Total Operating Costs (Line 05) - Total Other Costs (Line 09)

Total Unallowable Costs (Line 16)

- Interest (Line 12) + All Other (Line 15)

Profit (Line 17)

- Sales Less Allowable Costs (Line 10) - Total Unallowable Costs (Line 16)

The mathematical edits described will be performed for each of the four columns that comprise Schedule IC.

Schedule II - Selected Balance Sheet Items

Total Accts Receivable and Inventory (Gross) (Line 04)

- A/R Billed (Line 02) + A/R Unbilled (Line 03) + Common Inventories (Line 05) + Contracts Inventories (Line 06)

Net Accts Receivable and Inventory (Line 09)

- Total A/R and Inventory (Line 07) - Progress Payments and Advances

Total Current Assets (Line 11)

- Net A/R and Inventory (Line 09) + Other Current Assets (Line 10)

Total Contractor Owned Gross Tangible Fixed Assets (Line 39)

- Gross Book Value Contractor Owned Equipment (Line 15) + Gross Book Value Contractor Owned Building (Line 24) + Gross Book Value Contractor Owned Land (Line 33) + Tangible Fixed Assets (Construction in Progress) (Line 38)

  (Note: Recalculation for Line 39 is necessary only for FY 1981 - 1983)

The mathematical edits identified will be performed for each of the four columns that comprise Schedule II.

Calculation of Financial Ratios to Determine Consistency of Applied Allocation Procedures

Income Statement Items (Schedules IA, IB, and IC)

Each expense item on each of the income statement schedules will be divided by the appropriate category sales amount to determine an allocation percentage. The allocation percentages for each expense category of each of the nine years (i.e., Generated Inhouse, State and Local Income Taxes) will be compared

to the corresponding ratios of the successive year. Inter-year growth percentages that exceed ____% will be identified for further review. The ___% reflects inflation that prevailed over the nine year time period.

To assist in this edit procedure, the yearly growth rates for both sales and expense values will also be calculated. Growth rates that exceed the above identified percentages will also be identied for further review.

Calculation and Comparison of Selected Financial Ratios to Identify Operating Trends

The following financial ratios will be calculated for each segment:

- Reported Profit/Total Sales;
- Total Sales/Total Assets;
- Total Sales/Fixed Assets;
- Net A/R and Inventory/Sales; and
- Progress Payments/Sales.

When calculating these ratios only data from the Total DOD, Other U.S. Gov't, Commercial, and Total Segment categories will be used.

Subsequent to calculating the identified ratios, the means and standard deviations for ratios will be computed. Contractors with data falling outside one standard deviation from the mean will be identified.

In addition, the above ratios will be checked within contractor over each of the nine years included in the survey. Variances of more than 25 percent per year or 40 percent for five years will be subjected to further investigation.

Review of Reported Amounts for Reasonableness

The purpose of this edit procedure is to determine the existence of "expected values" that should result from relationships that exist between specific data elements, e.g., fixed asset growth and recognized depreciation charges.

Fixed Asset Growth/Depreciation Growth

Yearly fixed asset growth will be identified and compared to yearly depreciation growth. Depreciation growth should at least equal the fixed asset growth.

Gross Book Value/Net Book Value

Yearly net book values should be equal to or less than the reported gross book values.

Progress Payments/Fixed Price Sales

Year to year progress payments growth will be compared to growth of fixed price sales. The sales growth should approximate growth in reported progress payments.

Profits/Fixed Price Sales

Due to the increased risks inherent to fixed price contracts, reported profitability of fixed price contracts should exceed that reported for cost type contracts.

APPENDIX

III. QUARTERLY FINANCIAL REPORT DATA

QUARTERLY FINANCIAL REPORT

THE QUARTERLY FINANCIAL REPORTS PROGRAM publishes up-to-date aggregate statistics on the financial results and position of U.S. corporations. Based upon an extensive sample survey, the Quarterly Financial Report (QFR) presents estimated statements of income and retained earnings, balance sheets,and related financial and operating ratios for all manufacturing, mining, and trade corporations. The statistical data are classified by industry and by asset size. Pertinent data are provided, when possible, on material distortions in comparability owing to changes in accounting conventions or user needs.

For over 35 years, the Quarterly Financial Reports (QFR) Program has requested a sample of corporations to file financial data on a universal form. In 1980, Congress mandated a reduction in both QFR form complexity and sample size. In response, the program adopted a short form for surveyed corporations generally with total assets of less than $25 million. Corporations with higher asset values continue to submit the long form, which has been in use since 1974. To accomplish the sample size cut, the threshhold for sampling on less than a 1:1 ratio was raised from $10 million to $25 million in assets. The resulting reduced sample size was optimally allocated with further cuts made in asset sizes below $10 million.

PURPOSE OF REPORT: The main purpose of the QFR is to provide timely, accurate data on business financial conditions for use by Government and private sector organizations and individuals. Among its users, the Commerce Department regularly employs QFR data as an important component in determining corporate profits for GNP and National Income estimates; the Federal Reserve Board uses the QFR to assess industrial debt structure, liquidity, and profitability; the Treasury Department estimates corporate tax liability through use of QFR data; the Council of Economic Advisors and Congressional Committees utilize key indicators derived from QFR data as they design economic policies and draft legislation; the Federal Trade Commission (FTC) utilizes the series as a basic reference point in analyzing the financial performance of American industries; and banking institutions and financial analysts draw upon the series in making investment evaluations.

RESPONSIBILITY: The QFR is prepared by the Economic Surveys Division, Bureau of the Census, Washington, D.C. 20233, telephone (301) 763-4270. The FTC had been responsible for the program from inception in 1947 until December 1982. That responsibility was shared with the Securities and Exchange Commission until 1971.

The program designs and maintains on a current basis statistical cross sections (i.e., probability samples) of corporate enterprises; collects, analyzes, and summarizes periodic confidential reports from those corporations; estimates national aggregates based upon the individual company reports; and publishes the resulting aggregates.

PUBLICATION SCHEDULES: QFR data is scheduled for release approximately 75 days after the end of the first, second, and third calendar quarters and approximately 95 days after the end of the fourth calendar quarter. The QFR publishes information on the most recenty closed quarter for manufacturing, mining and wholesaling and the preceding quarter's data for retailing except in the fourth quarter, when the 95-day publication lag permits sychronized presentation. The following table defines the four reporting quarters for the surveyed industry divisions in terms of the month in which any given surveyed corporation's fiscal quarter ends:

Reporting Quarters for Surveyed Industry Divisions*

QFR Quarter	Manufacturing, Mining, and Wholesale Trade	Retail Trade
First	Jan., Feb., or Mar.	Feb., Mar., or Apr.
Second	Apr., May, or Jun.	May, Jun., or Jul.
Third	Jul., Aug., or Sep.	Aug., Sep., or Oct.
Fourth	Oct., Nov., or Dec.	Nov., Dec., or Jan.

* Coverage is for corporations whose quarter ends as indicated.

COVERAGE: Since the fourth quarter of 1973, reporting corporations have been instructed to consolidate the domestic operations of every corporation which is taxable under the U.S. Internal Revenue Code and is owned more than 50 percent by a reporting corporation and its majority-owned subsidiaries. In addition, consolidation is required for every majority-owned Domestic International Sales Corporation. Corporations that manufacture goods within the United States or base their sales activity in the United States and export their goods are considered domestic and are consolidated. Specifically excluded from consolidation are foreign entities (either corporate or noncorporate), foreign branch opertions, and domestic corporations primarily engaged in foreign operations. Therefore, subsidiaries that were created in foreign countries to manufacture and/or sell primarily in foreign markets are not consolidated. Also excluded from consolidation are domestic corporations primarily engaged in banking, finance, or insurance (as defined in Major Groups 60-63 and in Group 672 of the Standard Industrial Classification Manual, 1972 (SIC manual)). Consolidation is optional for domestic corporations required to file monthly or quarterly financial statements with the Interstate Commerce Commission, the Civil Aeronautics Board, the Federal Communications Commission, or the Federal Energy Regulatory Commission.

Nonconsolidated subsidiaries are accounted for on either the cost or equity method, at the option of the reporting corporation. All those that carry their subsidiary investments at cost report dividend income with other nonoperting income (expense). Corporations with assets less that $25 million that record investments in subsidiaries on the equity method report equity in earnings (losses) with other nonoperating income (expense); corporations with assets of $25 million and over report equity in earnings (losses) on a designated data line. Treatment of foreign branch net income (or loss) and the equity in foreign branches is similar to that used by corporations accounting for nonconsolidated subsidiaries on the equity method.

QUARTERLY FINANCIAL REPORT DATA

SELECTED INCOME STATEMENT ITEMS	1975	1976	1977	1978	1979	1980	1981	1982	1983
Net Sales, Receipts, & Operating Revenues	381,027	432,406	483,245	552,621	622,978	638,362	714,636	687,058	738,244
Income from Operations	26,290	36,269	43,476	48,743	46,544	39,034	48,826	35,183	41,654
SELECTED BALANCE SHEET ITEMS									
Cash and Securities	18,048	27,058	30,289	30,903	29,581	27,505	30,602	34,057	47,012
Non-Current Assets	47,289	52,045	56,417	63,002	74,968	85,613	99,905	106,893	113,956
Advances & Prepayments By U.S. Government	5,472	6,365	6,218	7,825	9,534	13,276	15,674	19,232	25,914
Total Assets	285,004	305,636	331,945	380,923	432,108	480,390	540,490	568,926	596,246
STUDY ASSETS	219,667	226,533	245,239	287,018	327,559	367,272	409,983	427,976	435,278
STUDY ASSETS (Reduced by Prog. Pymts.)	214,195	220,168	239,021	279,193	318,025	353,996	394,309	408,744	409,364
RATIOS									
Operating Profit/Sales	6.9%	8.4%	9.0%	8.8%	7.5%	6.1%	6.8%	5.1%	5.6%
Operating Profit/Assets	12.0%	16.0%	17.7%	17.0%	14.2%	10.6%	11.9%	8.2%	9.6%
Operating Profit/Assets (Reduced)	12.3%	16.5%	18.2%	17.5%	14.6%	11.0%	12.4%	8.6%	10.2%
Assets/Sales	74.8%	70.7%	68.7%	68.9%	69.4%	75.3%	75.6%	82.8%	80.8%
Assets (Reduced)/Sales	56.2%	50.9%	49.5%	50.5%	51.0%	55.5%	55.2%	59.5%	55.5%

SOURCE: Financial Statistics for All Durable Manufacturing Industries
Quarterly Financial Reports (1975-1983) for Manufacturing, Mining, and Trade Corps.
U.S. Department of Commerce, Bureau of the Census

NOTE: Years 1981 - 1983 advances and prepayments U.S. Government are for durable goods producers with assets in excess of $25 million.
Balance Sheet data is the average of the first and fourth quarters.

APPENDIX

IV. INDUSTRY INTERVIEWS

INDUSTRY INTERVIEWS

The DFAIR survey collected segment data from defense contractors to assist in analyzing their financial performance and its implications for DOD procurement policies. To get a better perspective on how defense contractors make decisions relating to DOD business, we interviewed top officials from defense contractors. The objectives of these interviews were to obtain defense contractors' views on:

- Defense business profitability and risk and their impact on marketing, financing, and capital investments;
- Recommendations for improvement of productivity and quality of production; and
- The impact of current and proposed DOD policies and recommendations for improvements.

The companies interviewed were selected to obtain a mix of defense contractors that would represent the following criteria:

- Contractor size;
- Defense products produced; and
- Extent of defense business relative to commercial business.

The following 11 companies were interviewed on-site over a three week period:

1. Boeing
2. General Dynamics
3. General Electric
4. Lockheed
5. Raytheon
6. RCA
7. Sanders Associates
8. Sun Chemical
9. Tenneco
10. Texas Instruments
11. United Technologies

The interviews were conducted with top management personnel who had decision making authority for both the defense and commercial business for their firm.

A standard list of questions was used to conduct the interviews. The major areas covered during the interviews were:

A. Capital Expenditures/Investment;

B. Financing;

C. Profitability;

D. Risk;

E. Marketing/Pricing/Outlook; and

F. Productivity/Quality.

The questions asked and a summarization of the responses is included in the following sections.

It should be noted that not all questions were asked of all the interviewees and that not all of the interviewees answered all the questions that were asked. The interviews were not intended to be a statistically valid sample of the defense industry, given that only 11 companies were interviewed. Therefore, the responses summarized below should not be construed as representative of the defense industry. The responses represent only the views of the companies we interviewed and only to the extent that the companies answered specific questions. Given the small number of interviews conducted and the variations in the questions asked and answered, results are presented below in a generalized non-statistical format.

A. CAPITAL EXPENDITURES/INVESTMENTS

1. What hurdle rate is used to evaluate capital expenditures?

   a. The answers ranged from 15% to 16% after taxes;

   b. Several respondents said they did not use a hurdle rate; and

   c. Most respondents said a hurdle rate was not the most important factor.

   d. Factors listed in order of importance were:

      (1) Need for capacity
      (2) Fits long range plan
      (3) Keep up with the competition

   e. Difference between decisions in commercial markets or defense:

Commercial:

(1) The percent of market that can be captured
(2) More reliance on quantitative measures
(3) The market is more predictable

Defense:

(1) The market is less predictable
(2) More reliance on qualitative measures
(3) Either win total market or none

2. How are capital expenditure decisions made?

   a. The procedure for most companies is to prepare annual requests at the working level which exceed the preplanned overall capital expenditures for the year. The requests are reviewed and acted upon at several management levels. The final decisions are based on the preplanned overall capital expenditure.

   b. The decisions are made based on:

      (1) Knowledge of people
      (2) Knowledge of the business
      (3) Need for production
      (4) Need for programs
      (5) Strategic reasons

   c. The difference between decisions in commercial markets and defense is:

      (1) Commercial is based on marketplace and ability to sell the product.

      (2) Defense is based on existing programs and requirements for production.

   d. Several companies who responded said that there is no synergism between commercial and government needs.

3. Do you set target investment levels for your commercial versus defense business?

   a. Most answered no.

   b. Contractors used same criteria and limitations for all investments.

4. Are defense investments made only on an after contract award basis?

   a. Most respondents said that investments were made before and after. The consensus was that investment decisions in defense business were made closer to award than for commercial investment.

   b. There is always a need for planning and commitments to long lead items.

5. What factors do you consider to decide whether to use subcontractors or to build in-house?

   a. Workload:

      (1) Need for stable work force
      (2) Subcontractor for peak loads

   b. Cost:

      (1) Can it be done cheaper
      (2) Length of program/risk/cost of
      (3) Investment

   c. Environment:

      (1) Regulations (small business)
      (2) Politics

   d. Control - Make items critical to performance.

   e. Technology - proprietary interests.

   f. Capability - need for experience.

   g. Availability and quality of subcontractor effort.

6. What key factors influence the level of investment for commercial versus defense business?

   a. Most said projected markets and prospects for growth.

   b. Some said need to balance business and achieve business objectives.

   c. Several had concern about continued defense growth.

7. Do you treat research and development costs differently in your return on investment analysis between commercial and defense business?

   a. The consenus was that there was no difference.

   b. One company said that they were different:

      (1) Commercial - potential return for product.

      (2) Defense - each contract stands on its own.

8. Do you believe defense and commercial technologies are substantially unique? If you separate the two in your manufacturing operations, is it because they are unique or because of other factors, i.e., security, impact on commercial profitability?

   a. Most said at least part of their operation is separate.

   b. The following differences were given as the reason for separation:

      (1) Accounting systems
      (2) Documentation
      (3) Management and administration
      (4) Production process
      (5) Quality control
      (6) Specifications
      (7) Security
      (8) Mind set

B. <u>FINANCING</u>

1. What do you consider your company's average cost of capital to be? Is this a before tax or after tax value? What are the key elements in determining this value?

   a. The responses by the companies seem to indicate that the higher a company is leveraged, the less its cost of capital. One company commented that equity demands the highest cost of capital.

   b. Debt to equity ratio for surveyed companies ran from 100% equity to 50/50%.

c. Companies responded that the cost of capital is from 14 to 16 percent after taxes, 18 to 21 percent before taxes.

d. One company commented that increased earnings and growth reduced the cost of capital.

2. How does defense business influence your cost of capital?

a. Several companies said defense business had no effect. They noted that cost of capital is more influenced by type of business and structure.

b. Several companies noted that a mixture of defense and commercial business helps.

c. Several other companies believed that defense is a "drag" on cost of capital. They noted that defense business has slower growth, is risky, and generally gets lower bond ratings.

3. What is the relative availability of capital for your defense versus commercial business?

a. Most felt there was little difference.

b. One company noted that absence of progress payments would absorb all available credit.

4. What source of financing do you use?

a. Companies responding said they used same sources for defense and commercial business.

5. What do you think accounts for the different financing options available for your commercial and defense business?

a. As noted above there were no differences.

6. What criteria are used by lending sources to evaluate your financing requests?

a. The respondents believed that the evaluation was not different than for a commercial organization.

b. Two major areas are considered; the market place and the individual company.

c. For the individual company, the following criteria were mentioned:

(1) Future business potential
(2) Cash flow
(3) Debt/equity ratio
(4) Credit worthiness
(5) Management
(6) Accounting quality

7. What do you consider are the major factors that determine your ability to obtain financing for your defense versus commercial business?

   a. Essentially no difference.

   b. Evaluation of such factors as: backlog of work, programs, earnings projections, and cash flow.

8. Does the level of defense business, relative to commercial business, effect your company's financing capability and cost?

   a. Respondents agreed that it would have some effect.

   b. They believed that if the current balance between commercial and defense changed in their company it could affect the views of lenders and investors.

   c. One company noted that the political nature of defense business increases risk.

9. What are the prospects for obtaining additional equity or long-term debt?

   a. The answers were good to excellent.

10. Do you have a target debt/equity ratio and how does it relate to business risk?

   a. Most companies did have a target debt/equity ratio.

   b. The debt/equity ratio does effect risk and rating.

C. PROFITABILITY

1. What criteria do you use to measure profitability?

   a. A large number of measures are used.

   b. At the income statement level, return on sales was used by many respondents, however, other measures included gross margin, operating income and return on cost.

   c. Companies seemed equally split between using return on assets and return on investment when evaluating the balance sheet results.

   d. Other measures used were:

      (1) Cash flow
      (2) Earnings per share
      (3) Asset turnover
      (4) Investment turnover
      (5) Annual targets
      (6) Return on programs
      (7) Compare business to its own industry

2. How do you establish profit objectives?

   a. Part of total plan for current and future years.

   b. For the short-run, based on return on sales, however, main measures are either return on assets or return on investment.

   c. One company noted that commercial return on sales is higher to compensate for greater investment.

   d. In defense, several companies said that profit objectives were program related.

3. What would account for differences in target profitability that may exist between your commercial and defense business?

   a. Differences are not as much by customer as by product, although one respondent noted that commercial work was more predictable and there was more control over destiny.

   b. Some of the considerations mentioned were degree of competition, type of product, potential markets, perceived problems, and perceived risks.

4. How do specific DOD policies and programs affect the profitability of your defense business, your subcontractors, or your commercial business?

   a. Several respondents noted that the biggest problem was stability and uncertainty over production volume.

   b. Also significant was the number of people to deal within the procurement and production process.

   c. Policies that concerned respondents were existing policies on disallowances, cost sharing on independent research and development and bid & proposal costs over ceiling (IR&D/B&P), and foreign selling expense.

   d. New policies such as warranties and competition in contracting were perceived as problems.

   e. Policies that are beneficial are policies having to do with capital, such as cost of money and progress payments.

   f. Subcontractors have difficulty in coping with requirements. Many refuse to accept the requirements. Progress payments are necessary for subcontractors; many have difficulty borrowing the necessary capital.

5. What changes to DOD policies and practices would improve profitability for defense business or subcontractors?

   a. Reduce number of people in review process.

   b. Change policies on unallowables, such as foreign selling expense, over-ceiling IR&D/B&P, and interest.

   c. Reduce or eliminate new policies on warranties and spares breakout.

   d. Need for greater stability.

6. What major events between 1978 and 1983 affected the profitability of commmercial and defense business?

   a. The events that had a detrimental effect on commercial business included:

(1) International competition
(2) Strength of dollar
(3) Energy prices
(4) Recession in 1981
(5) Cycles in commercial aircraft

b. The events that had a beneficial effect are the Economic Recovery Tax Act and the continued investment tax credit.

c. The events that benefited defense business included:

(1) Profit '76 and CAS 414
(2) Trend toward FFP contracts
(3) Higher profits because of projected inflation
(4) Use of EPA clauses
(5) Increase in progress payments
(6) Multi-year contracts
(7) Build-up in defense business
(8) Tax policies

d. The one event that was detrimental to both was the volatility in inflation during the period.

7. Does defense profitability analysis reflect unique cash flow advantages?

a. The answer was yes, because of progess payments.

D. <u>RISK</u>

1. How would you compare the degree of risk of your defense business to that of your commercial business?

a. There is a trade-off of risk and reward. Commercial has higher risk, but there is a potential for higher rewards. In commercial business, however, the risk can be addressed better. The respondents noted that they made their own decisions and that the results were more predictable.

b. In defense business they noted the the following drawbacks:

(1) Potential cancellation
(2) Harassment
(3) Concern over data rights

(4) Political factors
(5) Constant involvement of government people

c. They perceived the benefit from defense business as follows:

(1) Prompt payment
(2) Work with the state-of-the-art technology
(3) Technology paid for by government

2. What are the major factors influencing the level of risk for commercial versus defense business?

a. In commercial markets, the major factors suggested were market size, number of customers, and reliability of market.

b. In defense business, a long list of factors emerged. The nature of the customer was one consideration:

(1) Single customer
(2) No long term commitment to product
(3) Political risk

(4) Strategic changes of direction
(5) Curtailment or cancellation of programs

c. The nature of environment was another consideration:

(1) Competition
(2) Dual sourcing
(3) Pushing the state-of-the-art

d. Administration of contracts was the third cited concern:

(1) Rule changes
(2) Unallowable cost
(3) Defective pricing
(4) Debarment

3. How do you measure the risk for commercial and defense business?

a. The responses were mostly qualitative in nature.

4. How do you use risk in pricing, capital expenditures, and bidding?

   a. In commercial business, seek higher profit if risk is high.

   b. Risk is a significant determinant in deciding whether to bid.

5. What additional risk do you think exists for foreign military sales business?

   a. The three items mentioned more than once were offset requirements, loss of foreign selling expense, and ability to deal with foreign customers.

   b. A number of other risks were mentioned:

      (1) Volatility of U.S. policy
      (2) Currency fluctuations
      (3) Design changes
      (4) Delays in contracting
      (5) Post delivery service and support
      (6) Performance warranties

6. Does inflation affect risk assessments in the defense sector differently than the commercial sector? (Do EPA clauses do their job)?

   a. The majority said the EPA clause is good and is working well.

   b. One company noted that Government:

      (1) Picks and chooses what is escalated
      (2) Tends to use dead band on either side of target
      (3) Tends to shift more risk to contractors

E. <u>MARKETING/PRICING/OUTLOOK</u>

1. What factors do you consider to determine whether or not to pursue defense business?

   a. The most important factors seem to be technical capability and long range company goals.

   b. Other factors mentioned concern risk and reward:

(1) Investment required
(2) Perceived profits
(3) High probability of winning

2. What factors have caused you to avoid bidding on defense contracts?

   a. The following general factors were given:

      (1) High technical or cost risk
      (2) Too large of an investment required
      (3) Susceptibility to cancellation
      (4) Low probability of winning

3. Do you attempt to arrive at a balance among your major lines of business?

   a. Most said yes, but several said it would depend on opportunities.

   b. One company said that defense was not a growth business and that it had gradually reduced its share of defense business.

4. Has competition for defense business increased or decreased?

   a. Most said competition has increased.

   b. There was some concern about forced competition.

   c. One company noted that competition at the subcontractor level had decreased.

5. How do you establish prices for your commercial versus defense business?

   a. The primary difference is that commercial is market based, defense is cost based.

   b. Companies noted that strategies sometimes dictate pricing policies.

6. What factors do you consider when establishing prices?

   a. Three factors were cited: risk, technical know-how, and historical costs.

7. Are you able to capitalize on developments made in once sector of your business in other sectors?

   a. Responses ranged from none to some, depending on the nature of the business.

8. What is your growth expectation for commercial versus defense business?

   a. Most companies expected significant growth in commercial markets. The notable exception was shipbuilding.

   b. Most companies expected more modest growth in defense business.

9. What role does defense work have in your future financial health and prospects?

   a. Most companies said it was important to very important.

   b. One company expressed discouragement at:

      (1) Increased regulation
      (2) Congressional intervention
      (3) Defense industry relationship

F. PRODUCTIVITY/QUALITY

1. What type of programs are in place to improve productivity?

   a. Most respondents indicated some kind of program to improve quality and increase productivity.

   b. Among the various activities is increased use of CAD/CAM and automatic machines.

   c. Several respondents mentioned quality improvement programs.

   d. Also mentioned was increased use of productivity planning and measurement.

2. To the extent programs are in place, how are they reflected in pricing/earnings.

   a. Responses were limited.

   b. Suggested that the results are reflected in cost underruns and increased profits.

3. How do you measure productivity change?

   a. Few responses were obtained.

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