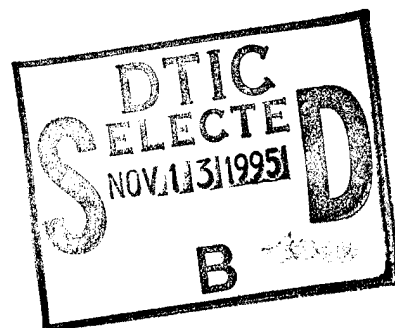


NAVAL POSTGRADUATE SCHOOL MONTEREY, CALIFORNIA



THESIS

**FINANCIAL ANALYSIS
OF PRIVATE SECTOR FIRMS
WITHIN THE DOD**

by

David C. Borah

June 1995

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Lieutenant, United States Navy
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of the requirements for the degree of

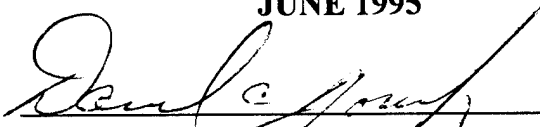
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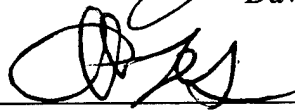
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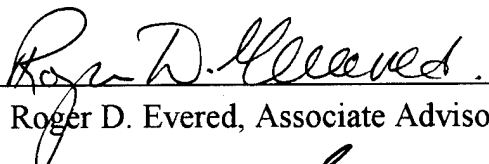
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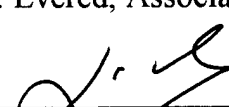
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I. INTRODUCTION

A. BACKGROUND

The dramatic decline in the United States Department of Defense's budget over the last several years, has dictated that each service component take a serious look at the way they conduct their business. This, combined with Congressional pressure to downsize, has further required that they make the most of each dollar appropriated to them. In response to this growing pressure the Department of Defense (DOD) must leave no program unevaluated as to its cost effectiveness as it searches for future savings. To that end the DOD must give serious consideration its procurement process.

The 1995 Federal Budget has more than two hundred and sixty billion dollars appropriated for defense. Of that, procurement accounts for forty-three billion or approximately 16.2% of the DOD budget. In reviewing the procurement process for possible hidden savings, the department must look at several aspects, and the aspect that this thesis will focus on is that of financial analysis.

Financial analysis, as it is used in this thesis, will refer to the process by which the government evaluates the financial strength of the private sector firms with whom it conducts business. Financial analysis in its various forms is widely used in the private sector. It is used to determine a company's strength, growth capabilities, risk and return on investment, as well as its future earnings potential. In the context of the Federal Governments use however, financial analysis has focused on both the production capabilities and the financial ability of an entity to provide the goods or services required, and still continue as a going concern.

The role of financial analysis in DOD is to provide insights and information relevant to such resource allocation

decisions. Each dollar that the DOD can realize in procurement program savings through financial analysis is more important today than it has ever been. And as the world wide obligations of the United States military change, often with little or no warning and often without specific funding available to support increased obligations, it is imperative that every dollar is spent wisely.

B. OBJECTIVES

The primary objective of this thesis is to identify all of those activities within the Department of Defense, who are involved in the process of financial analysis of private sector corporations, as well as the methods they use, enabling the reader to fully understand the current state of the practice of financial analysis in the DOD.

The first part of the analysis will identify what financial analysis is, as defined by both the private sector and the DOD. This will entail an in-depth review of current analysis practices presently in use both the private sector as well as the analysis practices outlined in the academic literature. The review is provided to give the reader an adequate foundation in financial analysis enabling him or her to better understand the processes presented in the analysis section of the thesis.

Secondly the analysis will focus on those activities and organizations within the DOD who are actively involved in financial analysis. As well as identifying the activities they report to, in an attempt to map the reporting structure of financial analysis both within and across services lines. This will provide the reader with an overall source as to the degree of connection, or separation, that presently exists in the department as a whole.

Thirdly and most importantly the analysis will focus on the current state of financial analysis within the DOD. It will identify those methods of analysis which are currently

in use, and the reasons for their use. It will also attempt to identify if there are formal instructions and or directives in use that dictate the type of analysis to be used, and if the dollar amount of a contract affects the type of analysis to be conducted. The purpose of this section is to give the reader a general understanding of the practice of financial analysis that is currently being conducted in the DOD.

Finally this thesis will look at the future of financial analysis within the department, and try to show where the practice is heading. Although these predictions in no way are certain to happen, nevertheless they should provide the reader with idea of what is to come in the field.

C. RESEARCH QUESTIONS

The following primary and secondary research questions will be answered in this thesis:

1. Primary question

What is the current state of the practice of financial analysis in the DOD?

2. Secondary questions

a. What is financial analysis as defined by the private sector and the DOD?

b. Which organizations/activities within the DOD are actively involved in financial analysis of private sector firms?

c. For what reasons are these firms involved in financial analysis?

d. Who are these organizations providing this analysis information to?

e. How do these organizations see their practice of financial analysis changing in the future?

D. SCOPE AND LIMITATIONS

This thesis will identify the practices of financial analysis presently in use and will identify those activities involved in such analysis. It will be limited to those activities within the DOD. For practical purposes this thesis will not include analysis conducted down at the individual unit level. Further it will not attempt to try to identify the analysis performed by individual contracting officers on a daily basis in the execution of small purchase orders. The numbers of contracting officers within the department are too numerous to contact and the methods they use are of little use to the reader.

E. ORGANIZATION

The following is an overview of the chapters in this thesis:

- Chapter II will provide a literature review of the different types of financial analysis in use in the private sector.

- Chapter III will discuss the research methods used in determining the current state of financial analysis.

- Chapter IV will provide the analysis of the data collected, and thereby answer the research questions.

- Chapter V will summarize the methods used, and provide the overall conclusions and recommendations of the thesis.

II. LITERATURE REVIEW

A. BRIEF HISTORY of FINANCIAL ANALYSIS

Financial analysis has more than likely existed since the beginning of time, or at least as long as some individual has risked a good that he or she treasured for the possible opportunity of increasing the amount of that same good or some other good that he or she treasured. But for this thesis, I have focused on the financial analysis conducted during the twentieth century. During this period financial analysis has grown rapidly and has undergone major changes since the stock market crash of 1929. Today there are literally thousands of books written about financial analysis, most of which deal with investment, but there are a few articles that deal with predicting financial distress and other reasons the analysis is conducted. But for the sake of brevity, I have decided to focus on only the main schools of thought during this period and how each of them interrelates with the analysis conducted within the Defense department.

1. Accounting Information

The financial analysis of today is deeply rooted in accounting, however this has not always been the case. Prior to the stock market crash of 1929, considerable time was put in examining the pattern of price changes as a means of conducting financial analysis (Lerner, 1966). It was not until the Securities Acts of 1933 and 1934, when the newly formed Securities and Exchange Commission (SEC) was given the power to set accounting standards and prescribe specific financial disclosure requirements of all publicly held corporations, that reliable financial records became available. The SEC's reporting requirements allowed financial analysis to be fundamentally changed forever, as the users of financial statements could now rely on them as well as the accounting methods that went in to their creation. (Hawkins, 1986).

Accounting remains the cornerstone of all financial analysis. Today the Financial Accounting Standards Board (FASB), in conjunction with the Securities and Exchange Commission (SEC), sets reporting requirements and generally accepted accounting principles for all publicly held corporations. This task is accomplished through the issuance of Statements of Financial Accounting Standards (FAS's) by the FASB, and the issuance of Pronouncements on Accounting Standards (PAS's) by the SEC, which all publicly traded companies must adopt. This coordinated effort between both the SEC and the FASB insures that both parties are in agreement and that all companies comply with the rules.

Additional accounting standards have also been established, under the direction of the Cost Accounting Standards Board (CASB), for those companies contracting with the Federal government. The CASB was reestablished in 1988 at the direction of Congress and put under the direction of the Office of the Management of the Budget (OMB). The purpose of CASB is to provide uniformity among accounting for contracts, as well as additional regulations and standards for contractors to follow when bidding upon and or working on federal contracts in excess of 500,00 dollars (Arnavas, 1994).

2. Economic Analysis

Economics in recent years has also played a large role in the conduct of financial analysis. Analysts have come to recognize that economic trends have a large effect on both sales and revenues of most entities. These trends thereby effect a company's ability to pay dividends in the future to their shareholders. As a result many financial analysts have began looking beyond the traditional approach of evaluating accounting statements, and have started to include more principles of economic thought in the completion of and explanation of their analysis. This change in thinking has

allowed corporate financial officers and financial analysts to better predict how changes in national income and consumer confidence will affect a firm's expected future cash flows. And as a result, economics now can provide financial analysts both depth and perspective in explaining changes in a firm's value.

B. THE PURPOSES FOR CONDUCTING FINANCIAL ANALYSIS

There are several reasons to conduct financial analysis. Whether it be to evaluate the risk of an investment or determine if a firm has the ability to repay a loan, when people and lending institutions are putting capital at risk they need to be able to determine the level of risk and probability of return of their actions. For purposes of this thesis however, I have attempted to group the many different types of financial analysis into two broad categories: investment and failure prediction.

1. Investment

Most of the research conducted in financial analysis throughout history has focused on analysis of investments. This is evidenced in the enormous number of books, studies and pamphlets published on the subject. And there are about as many different schools of thought on the subject as there are books on investment analysis, but in order to simplify the review presented here, I have decided to group all of these different approaches into three, rather traditional categories. The three categories are Fundamental analysis, Technical analysis, and the Portfolio management approach.

a. Fundamental Analysis

Two of the early financial analysis pioneers in America were Benjamin Graham and David Dodd, who attempted to stress the relationship between a stock's price and the corporation's earnings power. They conducted their analysis by computing a given company's average earnings over the previous

five years, and then established a multiple to link its earnings to the price of its stock. But over the years, Graham and Dodd's analysis has faded as investors have come to realize that they should not be purchasing stock based on its past earnings, but rather on its future earnings potential (Lerner, 1966).

As time has passed, analysts have also come to realize the importance of both timely and reliable information. Although financial rumors have always existed, and probably always will, it is recognized that one of the major factors that lead to the stock market crash of 1929 was the speculation of small investors based on unsubstantiated rumors. Rumors induced small investors to artificially bid up the price of a stock until the big investors, who often times started the rumors, sold short, taking their profits and leaving the small investor in financial peril. To reduce their risk, investors and financial analysts began developing points of contact at large brokerage houses, corporate underwriters, and large investors to insure the reliability and help substantiate the information they were receiving.

The financial analysts of today use a myriad of different methods in determining a firm's financial well being including; cash budgeting, profit planning, and capital budgeting. And as a result, the determinants of corporate rate of return are far more complex and present a more accurate prediction of a firm's worth than the analysis conducted on the monetary market forces which produced the random price fluctuations of the 1920's (Lerner, 1966).

Today financial analysts rely on abstract modeling of a firm, as compared to the market as a whole, in their search for a stock's intrinsic or real worth. One of the more popular models developed to determine this intrinsic worth is the Value Line model. This model, as well as the more inclusive mathematical models, require the analyst of today to

have an in-depth knowledge of calculus, matrix algebra, and statistics in order to perform the analysis.

Analysts have also come to realize that the " True Value" of stock is based more on a stock's expected stream of dividends, than on its expected earnings. Therefore conceptually a stock's price is the sum of the present value of its expected dividends, discounted at some predetermined rate to the present (Henderson, 1994). There are two factors that limit these future dividends however. The first is, the market in which the firm sells its goods. The competition, barriers to entry, and potential for growth in market share in its market, all have an influence on the rate of return on the firm's investment. The financial market is the second factor that can have impact on the stream of future expected dividends. Higher interest rates can slow product expansion, as well as require the firm to pay out higher interest or coupon payments on the debt it issues. Both of these factors have a great effect on the firm's ability and willingness to pay out profits in the form of dividends to its shareholders.

b. Technical Analysis

There has been significant investment analysis conducted in determining a stock's future price based on its past price patterns. This type of analysis has its roots in the pre-depression period of the 1920's, a time when the financial statements and the numbers in them could be easily manipulated and were therefore suspect. As a result, analysts began looking for trends in the price of a single stock or multiple stocks to predict a stock's future price. This technical analysis of choosing a group of stocks to predict climbs and falls in the market is still commonly used today, the major difference being that computers now enable the analysts to use many more variables than their predecessors were able to use.

c. Portfolio Management Approach

Another approach to financial analysis and planning is portfolio management. The underlying principle of this concept is to maximize the investors wealth and minimize his or her risk through diversification. The concept of diversification was widely acclaimed when it was introduced and remains a popular concept of risk management in investing today. And as result it has lead analysts to use large mathematical models on which much of the present day financial analysis is based.

Portfolio management is practiced widely by large investment houses, insurance companies and mutual fund managers. This investment approach allows the fund manager to hedge against the uncertain, by investing in stocks and bonds that have negative correlations to each other. Mutual funds have grown so popular that now more Americans own a mutual fund, than own individual stocks. This enormous increases in demand has fueled the fire for increased research and development of new and better financial analysis techniques in portfolio management.

2. Failure Analysis And Prediction

Failure analysis and prediction, is the discipline of using key financial ratios of an entity in an attempt to predict if the company can remain as a going concern. There has been substantial research in this field over the past 30 years, and some of these models have had great success in predicting business failure.

a. Lending Institutions

There are many people who are interested in being able to predict of oncoming business failure, however the group that has the most to gain from such research is the lending institutions of this country. And with the number of business failures in the United States at an all time high, failure analysis takes on an even greater role in determining

who should and who should not be lent money. Likewise, in this age of increased competition among banks and smaller profit margins, the ability of banks to effectively and efficiently reduce their losses due to bad debts, could be the difference between remaining in operation and becoming insolvent.

There are two main categories in research using financial ratios for the prediction of bankruptcy, those using the univariate approach and those using the multivariate approach. Most of the univariate research was accomplished by Beaver between 1966 and 1968. However, many people have conducted failure analysis research using different multivariate approaches. But the pioneer and father of the multivariate school of failure prediction is Altman. Since 1968 he, along with many others, has attempted to compile and correlate the correct number and mix of financial ratios into a model to predict bankruptcy (Zavgren, 1983).

(1) Beaver's Univariate Model. Beaver's univariate approach, was an attempted to determine the individual predictability of different ratios. To do so he selected 79 failed firms and matched them with nonfailed firms of both similar asset size and industry for his sample group. He used a cash flow model to serve as the frame work for his model, and to help explain the results. From a set of twenty-two original ratios, he concluded that only six could successfully be used in identifying a firm as either failed or nonfailed. These six ratios were cash flow to total debt, net income to total assets, total debt to total assets, working capital to total assets, current ratio, and the no credit interval (Zavgren, 1983).

Beaver determined that the best performing ratio of the six was the ratio of cash flow to total debt. This ratio had a 13 percent error rate one year prior to failure and only a 22 percent error rate five years prior to failure. Although Beaver completely ignored the issue of

covariance and multicollinearity among ratios, the study did accomplish two major achievements. First it allowed its users to predict failure with a high degree of certainty using a simple model. And secondly, and more importantly, it provided a theoretical discussion of its results, thereby encouraging others to try and improve upon his model.

There is however one drawback to his univariate ratio analysis approach, and that is that management, knowing of an individual ratio's importance, can manipulate the numbers going into the ratio and therefore create the false illusion of corporate health.

(2) Altman's Multivariate Model. Altman was one of the first to realize that Beaver's univariate approach for predicting bankruptcy would not give a full and true picture of a firm's financial health. He also concluded, as had Beaver himself, that covariance and multicollinearity existed between ratios, and that any one ratio could not be taken alone to predict financial distress. Therefore, he pioneered the use of multivariate discriminate analysis for this application in 1968 (Zavgren, 1983).

Like Beaver, Altman chose 33 firms that had filed for bankruptcy, and matched them against 33 non-bankrupt firms of similar asset size and industry. From a set of twenty-two variables, Altman's discriminate analysis chose five variables and arranged these variables into a discriminate function:

$$Z = .021X_1 + .014X_2 + .033X_3 + .006X_4 + .999X_5$$

where:

X_1 = Working capital/Total assets,

X_2 = Retained earnings/Total assets,

X_3 = Earnings before interest and taxes/Total assets,

X_4 = Market value equity/Book value of total debt,

X5 = Sales/Total assets, and
Z = Overall index.

The model was repeatedly tested and the results were classified as either type 1 or type 2 errors, where:

Type 1 errors = identifying a failed firm as not failed;
Type 2 errors = identifying a nonfailed firm as failed.

The results of Altman's model were convincing, the model had a type 1 error of 6 percent and a type 2 error of 3 percent. When the model was used with data two years prior to bankruptcy rather than one year prior, the type 1 error increased to 28 percent, while the type 2 error increased to only 6 percent.

Altman's model is significant, because it enables analysts to take several ratios together to determine a firm's financial health. His pioneering efforts have now allowed lending institutions to predict a company's oncoming financial distress with a high degree of confidence. Although the degree of predictability of Altman's model fell off sharply in the second year, Beaver was able to accurately predict bankruptcy five years prior to the fact. But even as Altman's overall error grew to 64 percent in the fifth year, the type 2 error remained a relatively small proportion of this high error rate. Therefore lending institutions that use Altman's model might incorrectly not loan a company money when they should have, but they would rarely loan a company money when they should not have. The result being that lending institutions have become much better at safely lending money and reducing bad debt as a result of Altman's multivariate model.

b. DOD Distress Model

The Department of Defense (DOD) relies heavily upon

corporate America for everything from tanks to toilet paper, and therefore it must be able to monitor the financial health of DOD contractors. This has become more apparent in recent years, as the government has had to bailout such large contractors as Lockheed and Chrysler. And with the DOD budget becoming smaller, leaving less room for waste, it has become increasingly more important for the DOD to contract with firms that are financially stable.

Much like the private sector, the DOD agencies came to realize in that there were substantial savings opportunities in being able to reliably predict financial distress of government contractors. These same agencies also realized that the work that Altman had done in the late 1960's, with his multivariate or Z-Score model, could be adapted for their use.

Methodologically the research that the DOD conducted in this area was much like that of Beaver and Altman before them. They first chose a sample consisting of bankrupt and non-bankrupt firms both of similar asset size and from like industries, to analyze. The DOD's leading consideration in their selection was to obtain a sample as representative as possible of the DOD hardware industry. The researchers chose 29 firms that met the study criteria, from a list of 72 firms that had filed for bankruptcy under chapter 11 of the National Bankruptcy Act, during the period from 1982 - 1986. And of these 29, approximately one third had earned a substantial portion of their income through defense contracts. Financial data was then collected from 15 line items on these firms over a five year period, these line items were then used to form 19 different ratios to be considered in the study. Thirteen of the eighteen ratios considered were found to be significantly different between bankrupt and nonbankrupt firms.

The researchers used multivariate discriminate analysis as the procedure for their model development. The

procedures used to chose the variables in the model were Stepwise discriminate analysis, evaluation and correlation with both T-tests and F-tests, classification accuracy evaluations, and the analyst's judgement based on financial theory. These considerations reduced the previous 13 ratios that were significantly different between bankrupt and nonbankrupt firms, to a manageable six ratios for inclusion into the model. The six ratios consisted of, one debt ratio, Total debt/Total assets, four liquidity ratios, and one profitability ratio, Net sales/Total assets. The resulting distress model was:

$$Z = 1.54 - 6.48X1 + 4.16X2 - .41X3 + 9.31X4 - .54X5 + 1.63X6$$

where:

- X1 = Total debt/ Total assets,
- X2 = Cash flow /Total debt,
- X3 = Current Assets/Current liabilities,
- X4 = Quick assets/Total assets,
- X5 = Working capital/Total assets,
- X6 = Net sales/Total assets, and
- Z = Overall index.

Firm classification:

- Nonbankrupt if $Z \geq 0$,
- And bankrupt if $Z < 0$.

The results the DOD researchers achieved were better than either the results Beaver or Altman had accomplished; this new model correctly classified both bankrupt and nonbankrupt firms 97 percent of the time. When the model was evaluated for a three year period prior to a firm filing bankruptcy, it was found to be accurate 60 percent of the time. The model's accuracy however dropped to only 24 percent

for the period five years prior to bankruptcy.

This model achieved is useful to the defense establishment, because now the government is able to determine if a contractor could stay in business long enough to fulfill his or her contractual obligation (Dagel, 1988).

C. LITERATURE REVIEW OVERVIEW

It should be apparent to the reader that financial analysis is performed in a wide variety of ways for an even wider variety of reasons. The discipline of financial analysis has experienced great changes over the years since Benjamin Graham and David Dodd attempted to stress the relationship between a stock's price and its potential earning power. Business schools have recognized these changes over the years and have changed themselves to reflect such change. Today a business school's curriculum includes economics, matrix algebra, calculus, statistics, and advanced accounting, to meet the demands of employers in today's financial markets.

The financial markets of the United States are no longer isolated from the World markets by the oceans that separate them, they now have become global markets, with the foreign markets in Japan, Europe, and the rest of the world directly affecting the prices of stock traded in the U.S. markets. Much of this change has been the result of new technology both in communications and computing, allowing for increased sophistication in the determination of a stock's real worth or the financial distress factor of a firm. But all of these factors must be taken into account for the reader to fully understand how the Department of Defense, with its enormous procurement budget and almost total dependence on private industry to provide it goods and services, performs financial analysis of private industry.

III. METHODOLOGY

A. IDENTIFICATION OF THE FOCUS GROUP

In attempting to answer what the current state of the practice of financial analysis of private sector corporations in the DOD, one of the first tasks was to identify those activities that might be involved in such a practice. It was assumed that the groups involved had to have something to gain by collecting such financial information. After careful thought, it was determined that since it was difficult for any DOD activity to gain directly from the financial fortunes of a private firm, that the agencies involved had to be those agencies that had something to lose by a firm's economic failure. Once this was established, the answer as to who might be involved, and for what reasons, became much clearer.

The commands and agencies that have the most to gain from the financial health of private sector firms, are those that rely upon, and do business with, these firms. This points directly to those agencies involved in contracting and procurement for the Defense Department. The costs these agencies endure in insuring that the companies they deal with are financially strong, are far out weighted by the benefits they reap in savings both financially and militarily, in ensuring the United States keeps its technological advantage in war fighting. These groups were then identified through the use of DOD organizational charts located in the Dudley Knox library, and through in depth discussions with the contracting professionals on the teaching staff at the Naval Postgraduate school. Additional information on the activities involved in financial analysis was also collected through networking with contracting and financial analyst specialists.

B. METHODS OF DATA COLLECTION

The process of collecting data and the methods of research used to collect the data was simple. With no funding available for travel, the decision was made that most of the data collected would have to be done electronically through the use of telephone communications and fax machines. The commands and agencies being investigated were all members of the Department of Defense and therefore most were accessible through the use of the DOD's DSN or Autovon systems. This no charge to the user form of telecommunication, allowed for lengthy, long distance discussions at no cost to the parties involved. Use of a fax machine was also available at no charge, through the Systems Management Curricular Office.

The literature review consisted primarily of archival research at the Dudley Knox library at the Naval Postgraduate School. Additional texts and instructional materials were received from faculty of the Naval Postgraduate School's contracting and procurement curriculums.

C. METHODS OF ANALYSIS

The primary method of analysis used in this thesis, was the use of a survey form during telephone interviews (See Appendix A). The form was designed to provide answers to the primary and secondary research questions, as well as providing additional information to tie together the different aspects of financial analysis that this thesis covers.

The first part of the questionnaire was designed to determine if the activity being surveyed was actually involved in financial analysis; it also questioned their organizational structure, as well as their activity's mission. This was all done in order to better classify agencies as to their mission and the role they played in the procurement process.

Secondly, the questionnaire focused on who was tasking their activity to perform financial analysis, and under what

conditions was the analysis being conducted. This also was done in an attempted to group the different agencies along DOD organizational lines, and to determine if there was a set of common conditions under which financial analysis is being conducted throughout the various services.

The questionnaire then turned to the actual analytical processes that each of the organizations are using. The first question in this area was designed to identify the specific analytical techniques being used, followed by a question as to the origin of such analysis. The identification of the specific type of analysis being used is important, because it allows the reader to see the various types of analysis being used within the DOD. The origin of such analysis is also important, because it indicates if the analysis is a in-house model, or if the model is someone else.

Fourth the questionnaire attempted to identify the sources of data being used. This was done first to identify the collection process that each of these activities must go through, and secondly to determine if the data is publicly available information. If the information is public, than the questionnaire attempted to identify how and from what sources the data was collected. And if the data is non-public information, the questionnaire then asked for what reasons is it not public, and how do these activities obtain such information.

Next the questionnaire turned to what the focus of the analysis really is. The objective of this is to determine if one area of analysis and its findings are more important than the others, and if so, then why. Since the focus is tied to time, this section also attempted to determine the length time the analysts are concerned with; whether they are interested in a firm's long or short term financial health. It also attempted to determine whom or to what activity the analysis is being provided to, and what decisions are made based on the

findings of the analysis.

Lastly, the questionnaire asked, what is the education and expertise level of the individuals conducting the analysis. This was done to help draw conclusions between the type of analysis being conducted, and the experience of those doing the analysis. Finally the questionnaire closed with, a question about any future changes that the analysts might see in the way they are presently conducting their analysis. This question was added as a means to make the reader aware of any future changes, and perhaps to perhaps identify additional research that can be conducted in the future.

IV. DESCRIPTION OF DOD FINANCIAL ANALYSIS PRACTICES

A. CURRENT STATE OF FINANCIAL ANALYSIS IN THE DOD

The Department of Defense is currently actively involved in the practice of financial analysis of privately held companies. With smaller Defense budgets, and their resultant downsizing effect on the military following the end of the Cold War, the DOD has been forced to take a closer look at the financial condition of the industries they buy from. In cutting its operating costs, the defense establishment has placed a particular emphasis on procurement. Military procurement, and especially contracting for hi-tech weapons systems, comes almost exclusively from private firms outside the realm of Federal government. These weapon systems contracts, often in the hundreds of millions of dollars, usually involve a prime contractor and various subcontractors, provide the majority of the contracts and contractor's that are financially evaluated by the various DOD agencies.

There are presently five commands and activities involved in the financial analysis of private firms. These five are the Defense Contract Management Command, Defense Contract Audit Agency, Naval Center for Cost Analysis, the Army's Center for Resource Analysis and Business Practices, and the Air Force's Center for Economic and Business Management.

B. ACTIVITIES INVOLVED IN FINANCIAL ANALYSIS

1. Defense Contract Management Command

a. *Mission and Organization*

The Defense Contract Management Command (DCMC) is a subordinate command of the Defense Logistics Agency (DLA), which reports directly to the Under Secretary of Defense for Acquisitions on all defense contracting issues. The mission of the DCMC, is to administer defense contracts for the military

services, other DOD components, federal civilian agencies, and when authorized to foreign governments.

The DCMC is the eyes and ears of its customers, the tax paying public, to ensure the contractor complies with delivery, quality and cost, as well as the other terms of the contract. To complete this task, the DCMC has established five districts(DCMD's) through out the United states and one international office. The five District offices are then further broken down into Defense Plant Representative Offices (DPRO's) and Defense Contract Management Area Offices (DCMAO's); which have their own resident facilities. Therefore, the DCMC headquarters in Washington DC. is in charge of a total of five DCMD's, 48 DCMAO's, 85 DPRO's, and 1,130 resident facilities in the United States.

The DCMC with its 22,200 personnel, oversaw 30,000 contractors in the first quarter of 1991, totaling over 750 Billion dollars in contracts. The \$750 billion dollars consisted of \$296 billion in contracts for the Air Force, \$266 billion for the Navy, \$158 billion in Army contracts, \$13 billion for the DLA, and \$17 billion in miscellaneous contracts.

The financial service functions that the DCMC performs are price/cost analysis, cost monitoring, the contractor's systems of purchasing as well as insurance, pensions, their accounting system, and financial stability analysis. The latter, financial stability analysis, is the DCMC financial function that the this thesis will investigate.

b. Context Within Which Financial Analysis is Conducted

The majority of the DCMC's work in financial stability analysis originates with large contractors and the subcontractors they use. The DCMC's involvement in this process begins with a Program Manager(PM), who is overall in charge of the entire procurement process, including delivery

and employment of a weapon system. The PM tasks the Procuring Contracting Officer(PCO) to let a Request For Quotes (RFQ's) for the materials, parts and services needed to construct the system. After all of the quotes have been received, the PCO then contacts DCMC headquarters , who in turn tasks each DMCAO through their respective DCMD, to provide financial information on each of the contract's bidders in their geographical area of responsibility. However, the PCO is not required to do so, and on contracts under 500,000 dollars financial analysis is rarely completed, unless the PCO has reason to doubt the contractor's financial capability to perform. The PCO also has the right to waive the DCMC from conducting financial analysis on a contract over 500,000 dollars, if he or she has had past experience with the contractor and believes there is no a risk of non compliance or delivery. Waiving the analysis however, does shift all of the responsibility of a defaulted contract away from the DCMC and directly to the PCO. The majority of such waivers are granted for large companies with a well established records of dealing with the government.

c. Conducting the Financial Analysis

Once the respective DCMAO has been tasked to complete a Pre-award survey the process of gathering information begins. To help the analysts in the field with their collection and evaluation of financial data, the DCMC has produced the a guide book. The GUIDE TO ANALYSIS OF FINANCIAL CAPABILITIES FOR PRE-AWARD AND POST-AWARD CONTRACTS was written in 1992 at the DCMAO in Phoenix, Arizona. Although the guide does not carry an official DOD publication number, it is widely used in the DCMAOs and DPROs around the nation.

(1) Data Collection. The collection of data starts with the company's most recent annual report and financial reports. However, instead of relying on a third

party, like Dunn & Bradstreet, to provide this information, the DCMC collects its financial information directly from the company being examined. This is done to insure that the most current information is used in developing an opinion on the company's financial well being. In addition to collecting the financial records of the firm, the investigating office also contacts the company's creditors. Again it is believed, that through direct contact with a company's creditors that the information collected will be more current and without bias. Although much of the information the DCMC uses in their analysis they collect themselves, they still rely heavily on audit reports completed by independent outside audit agencies. In the case that a contractor is not required to have an annual independent audit completed, and if no current audit is available, like in the case of most private business or a partnerships, then a sworn written statement from the contractor is required to attest to the validity of the company's financial statements.

(2) Analysis Process. After all of the financial records, debt reports, and audit reports have been collected, then the analysis process begins. The financial analysis itself, is almost the same as the analysis done by private firms for profit maximization and portfolio risk analysis. The only difference being, that instead of the DCMC determining if the price of the company's stock is under valued, they are concerned with the company's ability to remain as a going concern long enough to fulfill the obligations in the contract. In doing so, the DCMC like the private sector analysts place a large emphasis on a company's profit record, net worth, cash flows, and projected sales to determine its financial strength.

(3) Focus of Analysis. Cash flows in particular, are the single most important item in determining if a contractor can fulfill his or her contractual obligation.

And therefore, the government conducts extensive analysis in this area. This is readily apparent in the DLA form 1407 they use for their analysis (See appendix C). The working capital of a company will determine the amount of capital the business has to support its current operations. A low margin of working capital could prevent the contractor from taking on any additional work without first obtaining an outside source of funding. This along with the contractor's credit rating is crucial in determining if the contractor can perform under the contract's specifications.

The three liquidity ratios that the analyst focus on are the Current ratio, Quick ratio, and Total liabilities/Total net worth ratio. The current ratio indicates whether the contractor can pay his creditors in the short run, and as a rule of thumb should be greater than two. The quick ratio, or acid test ratio as it is sometimes referred to, indicates the ability of the contractor to pay off creditors with his or her most liquid assets. This ratio however, does not take into account the contractor's inventory as a current asset. Because inventory at times can be difficult to move, and therefore can not be sold to settle creditor's claims on short notice. The last ratio the analysts focus on, is the firm's liabilities/Net worth, which is used to determine if the company's debt to equity margin is increasing. An increase could indicate a change in the company's ownership structure.

In addition to the liquidity ratios discussed above, the financial statements also provide information as to the company's overall financial position. Further information is gathered through the use of both horizontal and vertical analysis to get a better understanding of the company's financial health over time. And special attention is given to cases in which the contractor being analyzed, is a subsidiary of a large corporate conglomerate, to insure that the

financial information being analyzed reflects that of the subsidiary, and not that of the corporation as a whole.

d. Report of Findings

After all of the financial analysis has been completed, it is submitted with the rest of the pre-award survey information the DCMAO has compiled to the PCO (See appendix D). Following a review of the information, normally with the PM, a final decision is made as to a company's ability to perform all of the functions as outlined under the contract specifications. Again, the PCO's decision to either award or not award the contract based on the DCMAO's recommendation is up to the individual PCO, he or she is in no way obligated to abide by the DCMC's recommendation.

2. Defense Contract Audit Agency

a. Mission and Organization

The Defense Contract Audit Agency (DCAA) acts as the principle audit agency for the Department of Defense and the Federal government. It is headquartered in Washington D.C., and maintains regional offices in five U.S. cities, as well as 150 field offices through out the World. Established in 1965, the DCAA performs contract audit functions and provides accounting and advisory services for the DOD. The majority of the services the DCAA provides, deals with the negotiation, administration, settlement of contracts, and effective pricing. In order to complete this mission, the DCAA has been given subpoena power to secure records and tax return working papers of the firms it audits.

The DCAA performs many types of audit functions for many government agencies, but the three types of audits the DCAA performs in the realm of contract support are Price Proposal Audits, Contract Settlement Audits, and Cost/Price Data audits. These audits start with objectives, and these objectives determine the type of audit to be conducted as well as the standards to be followed. The Audits may also included

a combination of performance and financial audit objectives, or may have some objectives limited to some aspects of one audit type. Although these audits are important to the contracting process, they do not focus on the factors that ultimately determine if a contractor is financial capable of performing under the contract from the outset. To determine this the DCAA relies on their preaward survey process.

b. Context Within Which Financial Analysis is Conducted

Preaward surveys completed by DCAA Field Offices (DCFO's) are conducted at the specific request of the Contracting Officers (COs), either the Administrating Contracting Officer (ACO) or Procuring Contracting Officer (PCO). These request are submitted prior to contract award and are usually urgent in nature, with the DCFO having only 30 days to complete the survey. The two types of information that the CO's normally request are, the financial responsibilities of the contractor to fulfill the contract, and the adequacy of the contractor's accounting system to accumulate the type of cost information required by the contract. This task can sometimes become difficult for the DCFO to complete, if the auditors have problems in acquiring the information from the contractors in a timely fashion. The financial responsibilities portion of the preaward financial survey is of more importance to this research.

c. Conducting the Financial Analysis

The purpose of the preaward financial survey is to determine if the contractor's finances are adequate to perform the contract. Before making any decision however, the auditors must first determine if the contractor meets the minimum requirements a set forth in the Federal Acquisition Regulations (FAR), as they apply to the contract.

(1) Data Collection. The data includes balance sheets, profit and loss statements, statements of cash flows, cash forecasts, and a financial history of the

contractor. However, during the preaward survey, or at any time the auditors or the COs become aware of conditions that could potentially cause a contractor's financial instability, a Financial Capability Review may be called for. This responsibility of monitoring the financial health of the contractor shifts to the ACO once a financial jeopardy condition has been reported, because insolvency may occur at any time when the firm is not able to meet its debts, or when its total liabilities exceed its assets.

(2) Analysis Process. During the analysis process the auditors rely on several tools (See appendix E), one of these is a vulnerability assessment based on a multivariate discriminate analysis model. This Z-score model as it is called, readily assesses the contractor's financial health in terms of going bankrupt in the near future. The model accomplishes this through the use of five ratios combined to compute a composite score. The five ratios the model includes are working capital as compared to total assets, retained earnings as a ratio of total assets, earnings before interest and tax (EBIT) as a percent of total assets, market value of equity divided by book value of total debt, and sales as a proportion of total assets. Each of the five ratios are weighted separately and are expressed as follows:

$$Z = .012X1 + .014X2 + .033X3 + .006X4 + .01X5$$

where:

X1 = Working capital/Total assets,

X2 = Retained earnings/Total assets,

X3 = EBIT/Total assets,

X4 = Market value of equity/Book value of total debt, and

X5 = Sales/Total assets.

The resultant score is then compared to the following predictions, whose values have been determined by research of

firms that have actually filled for bankruptcy:

<u>The Value</u>	<u>Prediction</u>
3.00 or more	Very little to no chance of bankruptcy,
2.68 to 2.99	A remote chance of bankruptcy,
1.81 to 2.67	Possible chance of bankruptcy, and
1.80 or less	probable chance of bankruptcy.

However, the auditors do not rely totally on the results of this model to reach a conclusion as to the financial health of the contractor, instead they collect further information that will either strengthen or refute the model findings.

(3) Focus of Analysis. The DCAA's analysis tends to focus on the near term with the contractor's line of credit and the cash requirements of the contract being offered. Particular attention is given to determine if the contractor has been able to meet debt payment schedules in the past. A Current ratio is calculated for the company to determine if the company can liquidate its current assets and finance operations in the immediate future (i.e., the contract being considered). An acid test ratio is also calculated, to ensure that the contractor is not relying to heavily on the sell of his or her inventory to finance operations in the near future. Additionally, a schedule of aged accounts payable is examined by the auditors to insure that the contractor is liquidating accounts payable in a timely fashion. Continuing operating losses in different areas of the contractor's business are examined as well, to determine in they will continue and if they will have an effect on the firms ability to perform.

The DCAA also places great emphasis an entities funds available and cash flow forecasts. Because all other things equal, if a company does not have the funds available to meet its current debts and those debts incurred in taking

on the additional contract being offered, financial distress will be certain to occur. And at a minimum the contract will be delayed in its completion. The method of payment as specified in the contract will have a large effect on the firm's expected cash flow forecast. If the method includes prepayment or progress payments, the contractor will get relief in his or her cash outlay requirements. Further consideration is given to liquidating assets, and restructuring in an attempt increase owners equity.

Lastly, the auditor during the financial capability review will make a determination as to if the contractor has or is about to file for bankruptcy. It should be noted that, neither filing bankruptcy under Chapter X or Chapter XI, by themselves provides certainty that a company will have to liquidate all its assets. But it does raise uncertainty as to the economic future of the firm, and there ability to perform.

d. Report of Findings

The financial capability review contains answers to any specific needs the CO has requested, as well as the procedures followed(See appendix F). The review opinion is based on all of the data collected and examined as a whole. A company doing poorly in only one area, including the Z-score, may not necessarily receive an adverse review opinion. However, the final decision as to the review opinion lies with the auditors themselves, and is largely based on their experience and confidence in the firm being reviewed.

The Contracting Officer is not obligated to take the auditors advice, and or agree with the review report. However, as in the case with the opinions of the DCMAO's, if the contracting officer's opinion differs and the contractor goes under, then the CO and only the CO can be held responsible. However, it is rare if ever that the CO dismisses the DCAA's review findings, because normally the CO would discuss any

problems with perspective bid winners with the PM. And the PM would not jeopardize his entire weapons system on one financially instable contractor, in order to save a few dollars.

3. Naval Center For Cost Analysis

a. Mission and Organization

The Naval Center for Cost Analysis (NCA), is the sole activity within the Department of the Navy actively involved in financial analysis of private sector firms. This financial analysis is done in support of the NCA's main mission which is to provide cost estimation and cost analysis. Perhaps a better definition of the NCA's mission is, to provide cost, financial, and economic analysis to the Assistant Secretary of the Navy for Financial Management and other high level Navy officials in support of corporate decision making. However, the NCA is under the sole direction of direction of the Office of the Assistant Secretary of the Navy for Financial Management. Who is also the Comptroller of the Navy (NAVCOMPT), a subordinate to the Office of the Secretary of the Navy (SECNAV). All three of these activities are collocated in the Washington, D.C. area, with SECNAV and NAVCOMPT located in the pentagon and NCA located in Crystal City.

b. Context Within Which Fiancial Analysis is Conducted

The a majority of the financial analysis that the NCA is involved in deals with the prediction of financial failure or distress of the firms that make up the industrial base of the Navy. Their analysis is used to make decisions concerning milestone reviews of major procurement contracts. Additionally they are routinely tasked by the General Counsel's office of NAVCOMPT to review the release of retained progress payments to individual contractors. The contractors who only receive 85% of their contract payments in the form of progress payments and the remaining 15% at completion of the

contract can petition NAVCOMPT for the remaining 15% of their payments if they can prove financial distress. Requests of this type, to review a contractor's financial condition, are received five to six times annually. Additional analysis is also performed on a less frequent basis on the overall financial condition of the Navy Department's industrial base.

c. Conducting the Financial Analysis

The NCA places a lot of emphasis on the Dagel and pepper Z-Score model in determining the financial health of a the company being examined. This is not say that the NCA relies solely on the Dagel and pepper model; in addition they conduct the more traditional ratio analysis to either support or refute the findings of the model. The ratios they compute include liquidity, solvency, profitability, and business base ratios.

(1) Data Collection. The NCA collects its data much like many institutional financial analyst do, it relies on the published annual reports of the corporations being examined. However, sometimes this information is not enough and the NCA must go directly to the company itself to receive the information they need. This information, which usually is guarded by the company because of its potential to cause harm to the company if acquired by a competitor, is requested in writing. And usually such information is either hand carried to the NCA's offices in Crystal City, or one of the NCA's analysts examines the information at the contractor's offices.

(2) Analysis Process. The analysis process begins with the computation of a score using the Z-Score model. This mutivariate discriminate analysis model is as follows:

$$Z = 1.54 - 6.48X1 + 4.61X2 - .41X3 + 9.31X4 - 5.4X5 + 1.63X6$$

where:

- X1 = Total debt/total Assets,
- X2 = Cash flow/total Debt ,
- X3 = Current Assets/Current Liabilities,
- X4 = Quick assets/Total Assets,
- X5 = Working Capital/Total Assets, and
- X6 = Net Sales/Total assets.

The model results are then compared with results for previous periods, in an attempt to determine if there are any trends that have occurred in the past or are just starting to occur. There are no specific numbers that the model scores are compared against to determine the likelihood of financial distress, however if the model produced a negative number, there would be doubt as to the company's ability to survive.

As stated before, the Z-Score is not the only type of analysis that NCA's analysts rely upon; they also conduct ratio analysis to better help them in their decision process. Additional information is also obtain from various government and non government sources to help in the decision process. This information is often obtained through professional publications.

(3) Focus of Analysis. First, The analysts attempt to focus on trends in the company's performance. The NCA believes that by taking into account only the current year or the year being examined, without the benefit of knowing what has happened in the adjacent years, the analysis can result in misleading information. Therefore, they tend to focus on the financial ratios that will best indicate a firms financial condition over the period of analysis. In the case of release of retained progress payments, the analysts would look at liquidity ratios, as the company contends that the delay in receipt of payments will result in financial hardship. On the other hand, if the analysis is being

conducted to determine the financial health of the Navy's industrial base for future years, then the analysts will focus on profitability and equity ratios.

d. Report of Findings

Regardless of the type of financial analysis being conducted, the information from the Z-Score model along with the ratio analysis and other information obtained is integrated and is presented as an analytical report. The NCA believes that it is their job to report their findings in the most analytical and objective way possible. They usually do not offer an opinion on what action should be taken, but rather allow the people to whom they are providing their information to use their analysis along with other considerations being weighted to reach their own decisions. Most of the time the analysts deliver their information to NAVCOMPT, however they have in the past provided analytical information to the Assistant Secretary of the Navy for Research Development and Acquisitions, as well as the Office of the Secretary of Defense.

4. Center For Resource Analysis And Business Practices

a. Mission and Organization

The Army's Center for Resource Analysis and Business Practices (ACRABP), is a component of the Office of the Assistant Secretary of the Army for Financial Management. The ACRABP is collocated in the Pentagon with the Army's Comptrollers office and provides all of the financial analysis of private firms within the department. Their purpose for conducting financial analysis is similar to that of the NCA in that, they provide financial analysis in support of their main mission which is to provide cost estimation and analysis to the senior leadership of the Army Department in support of decision making. But additionally the ACRABP monitors the business practices of the private firms that the Department of the Army deals with.

b. Context Within Which Financial Analysis is Conducted

The financial analysis that the ACRAPB conducts is done at the direction of the Office of the Assistant Secretary of the Army. Much of the analysis that they conduct relates to the evaluation of the procurement of major weapon systems milestone reviews. One of the major reasons these reviews are conducted during the acquisition phase of procurement is to insure that the contractor is financially capable of meeting the delivery schedule of the systems to the Army. As the manufacturer moves from the prototype phase to the full production phase of these contracts, the capital investment in personnel and machinery grows rapidly. Therefore it is imperative to determine if the contractor has the reserve capital available to meet these requirements.

Additional financial analysis is conducted on a less frequent bases to determine the industrial base of the Army. Also like the Navy, the ACRAPB conducts financial analysis on firms who request the release of retained progress payments to support their continued operation.

c. Conducting the Financial Analysis

The Army's financial analysts unlike those of the Navy, do not rely on trends in Z-scores to determine the financial health of a company. Instead they use a combination of bond ratings, ratio analysis, and current business information in print to reach their conclusion.

(1) Data Collection. The analysts begin their evaluation process by collecting bond ratings for the firm being evaluated. This information is obtained through firms, like Moody's or Standard and Poor's bond rating service, and many times the bond ratings are taken directly from the pages of the Wall Street Journal. The analysts believe that the private sector rating firms, with their staffs of hundreds of corporate analysts and years of experience, can provide valid valuable information about a company's financial health.

The analysts also collect financial data from corporation's annual reports in order to perform financial analysis using ratios. If the company being evaluated does not publish an annual report, or if the information required is too specific to appear in an annual report, then that information is obtained directly from the company itself. Additional information on the current business dealings of a particular company are also obtained through the use of PROQUEST. PROQUEST is a software application in the pentagon that can access the pentagon's library.

(2) Analysis Process. The analysis itself starts with reviewing the corporate bond ratings of the company in question. As described above, these ratings are obtained from third party sources and are attributed a high degree of reliability in their ability to predict business failure. Secondly, these analysts perform financial analysis using the more traditional ratio analysis approach. The ACRABP performs analysis on fourteen separate ratios. These ratios come from three different categories including the solvency, efficiency, and profitability ratios. The six solvency ratios that the analysts compute are the Current assets/Current liabilities, Current assets/Total assets, Quick assets/Current liabilities, Quick assets/Total assets, Working capital/Total assets, and Cash flow/Total debt. The four efficiency ratios include Accounts receivable/Net sales, Accounts/Purchases, Cost of sales/Average inventory, Net sales/Average assets. The three profitability ratios that the analysts examine are EBIT/Total assets, Net income/total assets, and Retained earnings/Total assets.

(3) Focus of Analysis. The focus of the analysis depends greatly on the reason the analysis is being conducted, as described in the context section above. However, it should be noted, that the ACRABP places an enormous amount of confidence in the private bond rating agencies' abilities to

predict financial distress. And unless the ratio analysis performed by the ACRABP points in a completely opposite direction, or the contractor has no corporate bonds that are listed and evaluated by the private rating agencies, the ACRABP will normally consider the private bond rating as a better indicator of a firm's financial health.

d. Report of Findings

After all of the information has been collected from its various sources and evaluated, the ACRABP prepares a report. This report normally includes the firm's corporate bond rating, the results of the various ratios that were calculated, and synopsis of the firm's recent business practices over the past six months as collected from PROQUEST. This information is then routed to the Assistant Secretary of the Army for Financial Management to assist him in his decision process. Information is also provided to other high ranking civilian and military personnel within the Department of the Army on a less frequent bases.

5. Office of Economic And Business Management

a. Mission and Organization

The Air Force's Office of Economic and Business Management (OEBM), is a subordinate activity of the Assistant Secretary of the Air Force for Financial Management. The OEBM is the sole office in the Department of the Air Force responsible for monitoring the financial health of the Air Force's industrial base. The mission of the OEBM is to provide economic and financial analysis to support decisions of senior Air Force administrators, and in support of its cost estimation mission it conducts financial analysis. To do this the office is staffed with dozens of people who perform a variety of tasks dealing with private business within the Air Force. But the task of analyzing the financial health of the department's industrial base lies with only two individuals, both are active duty military officers who have PHD's.

b. Context Within Which Financial Analysis is Conducted

The majority of the financial analysis conducted by the OEBM is done at the request of the Office of the Assistant Secretary of the Air force for Financial Management. The information that the OEBM provides is used in support of various decisions dealing with the weapon system procurement processes of the Air Force. Like both the Navy and the Army, the Air Force also conducts analysis on the financial health of their major contractors during the milestone review process. This is done to insure that the contractor can meet the financial obligations that the contract requires. Additionally, the OEBM conducts financial reviews of those companies who are requesting release of retained progress payments because of financial hardship.

c. Conducting the Financial Analysis

The OEBM no longer relies on Z-scores to determine the probability of a firm going bankrupt, instead they use the corporate bond ratings of the various companies they analyze. Their move away from the use of Z-Score models was the result of an experiment they conducted, that included firms that were publicly traded in the United States. Using COMPUSTAT, a computer program that provides online financial information about publicly traded stocks, the researchers ran the Altman's Z-score model on all the companies with publicly traded stock. The Z test results indicated that over one fourth of all companies with publicly traded stock had a Z-Score of less than 1.8, the score at which Altman predicted that bankruptcy was eminent. The test was then reran, using the financial statements from the previous year for those companies who had a score of 1.8 or below. This was done to determine how many companies should have gone under and did not. This time the test indicated about one fifth of the total. Realizing that the test results were not an accurate indication of the financial health of corporate America, the researchers began

looking for an alternative method of evaluation.

(1) Data Collection. The OEBM relies on Standard & Poors, and Moody's to collect the data on bond ratings they use in their analysis. The Air Force's analysts have determined, much like the Army analysts have, that the free market can readily and accurately provide this information through the bond rating services already in place. It is believed that the risk ratings that a particular company's bonds receive is an accurate indication of their ability to remain operational. Because, if there is even a small risk of a company becoming insolvent and not being able to meet their bond coupon payments, the bond rating given to these bonds would accurately reflect the risk. The researchers believe that the analysis conducted by these bond rating firms will far more accurately indicate a company's financial health condition than any analysis they could conduct with their limited experience and resources.

(2) Analysis Process. The analysis process uses a color code system to classify the financial stability of the firms they deal with. The system was designed to resemble a traffic stop light, with green being a signal to go ahead with a specific contractor, and red meaning to stop and conduct further evaluation before continuing. Although, this method of classification is somewhat over-simplified, it does send a clear and understandable message to those people who are using the OEBM's findings to make decisions. Classifications, or colors, are assigned to each company on the following basis:

Green - Bond ratings of A- and above
Yellow - Bond Ratings of BBB up to A-
Red - Bond ratings of BBB and below

It should be noted that, this method of classifying firms as

to their ability to remain in business only recommends firms with bonds that are considered of investment grade, BBB and above.

(3) Focus of Analysis. The OEBM's analysis focuses only on corporate bond ratings. There is no consideration given to Z-scores, and therefore they are rarely calculated. The analysts also believe that there is little to be gained from conducting ratio analysis, since it is known that such analysis has already been used by the bond rating services in their calculation of the bond rating. Additional attention is also given to recent events that have occurred, and that are not already reflected in a company's bond rating. But the overall focus of the financial analysis conducted by the OEBM revolves primarily around the corporate bond rating of companies as set by the different rating firms.

d. Report of Findings

After a company's bonds have been evaluated and categorized, all additional information that is known about the company is collected and summarized to help better explain the company's present financial condition and current operations. This information, and a recommendation as to the company's financial condition, is then sent to the Assistant Secretary's office where it will be used to support decisions made. This information is used at all major milestone reviews, is used to settle discrepancies in paying out retained progress payments, and is also requested on a periodic basis to evaluate the financial condition of the Air Force's industrial base.

V. ANALYSIS OF DOD FINANCIAL ANALYSIS PRACTICES

Now that all of the activities who are involved in financial analysis have been identified and described, this chapter will attempt to compare and contrast these organizations along various lines in order to provide the reader with a better understanding of the current status of financial analysis within the DOD.

A. CONTRACT SUPPORT VS INDUSTRIAL BASE ANALYSIS

The analysis of private sector companies that is presently being conducted within the DOD can be grouped into two broad categories, contract support and industrial base analysis.

The first category of analysis, contract support, is primarily conducted by the DCAA and the DCMC at the request of the contracting officer overseeing the issuance of a specific contract. This type of analysis with its limited scope focuses only on the single company being offered the contract, and has a short term outlook. The primary purpose of this type of analysis is to ensure that the company being considered has sufficient capital and cash reserves available to perform under the conditions set forth in the contract. The analysis itself primarily consists of ratio analysis and cash flow analysis as a means to determine a firm's solvency.

The second category of analysis, Industrial Base analysis, is primarily conducted by those activities at the Assistant Secretary level. These agencies may either focus on a single contractor (like General Dynamics) or a group of contractors providing a common product (like ships for the Navy). These activities conduct their analysis at the request of their respective Comptroller's Offices for the use of high level management in support of corporate decision concerning the status of the industrial base or about continuation to the

next successive milestone in the Planning Programming Budgeting System (PPBS).

B. SHORT TERM VS LONG TERM CONCERNS

Much like the division between contract support and industrial support analysis, the financial analysis within the DOD can also be divided between short term and long term concerns.

All of the agencies practice some sort of short term financial analysis, but there are two activities that practice nothing but short term analysis. The analysis conducted by the DCMC and the DCAA is completed only in support of the short term objectives in the awarding of a specific contract. These analysts place a large emphasis on liquidity and cash flows in their analysis of a contractor's capability to perform. There is, however, no effort made to analyze the firm's profitability and long term growth potential because the only concern of the analysts are if the contractor can complete the contract being offered. Further, as long as the contractor can remain solvent during this period and complete the contract on time, these agencies have met their obligation to the contracting officer requesting such information.

There is also short term financial analysis being conducted at the Assistant Secretary level. However, this analysis is not done to support a contracting officer in letting a contract, but rather in support of the progress payment decisions as requested by their Assistant Secretary's General Counsel. This short term analysis is conducted five or six times annually by each of the services agencies to determine if previously retained progress payments should be released to the contractor. The analysis that is conducted is much like that of the DCAA and the DCMC, focusing the analysis on cash flows and whether the company requesting release of

payments has sufficient cash flows to continue operations and complete the contract. The findings of such analysis plays heavily in the Assistant Secretaries' decision to release such funds.

The majority of the analysis conducted by the agencies at the Assistant Secretary level however is long term financial analysis. This analysis comes in two forms, analysis of a single firm and analysis of multiple firms within the same product line. The former is performed on a routine basis in support of milestone review decisions. This analysis focuses on whether a contractor has sufficient capital assets in place to move on to the next stage of production, and is also used to determine if the company is financially healthy enough to complete all of the stages of production, delivery, and support throughout the multi year procurement process. If it is determined that the company is not financially healthy enough to provide all of the services required, then consideration is given to using a dual source procurement plan.

The second type of long term analysis that these three activities perform is that of industrial base analysis. This analysis usually focuses on the extreme long term, ten to twenty years away, in an attempt to determine if the present industrial base will be in place for future procurement requirements. An example of such analysis was the decision to continue the financially troubled SEAWOLF submarine project being carried out at General Dynamic's Electric Boat Division. It was determined through financial analysis that the long term costs of building submarines in the future after all submarine construction had been halted for several years would far outweigh the cost overruns and financial troubles that electric boat is presently suffering with the SEAWOLF program. Therefore, it was determined that even though the program was suffering financially that it should be continued. In recent

years, there has also been analysis completed on the United States commercial ship-building capability, to provide ships for the lift requirements of the Military Sealift Command.

C. PUBLIC AVAILABLE VS NOT PUBLIC AVAILABLE DATA

The data used in the DOD's financial analysis comes from two sources, financial information that is available to all through annual reports and financial statements and financial information that is closely guarded and not for public release. Unlike the information in the prior two sections, the collection of data can not be categorized by individual activity or the length of time the analysis concerns.

The publicly available data is collected by all activities. This data is received both electronically through the use of COMPUSTAT and through the mail in the form of annual reports and prospectuses. The OEMB even relies on third parties like Standard & Poor and Moody's for the collection of their publicly available data.

However much of the analysis that is conducted is conducted on information that is not readily available to the public. On the contracting level, this can simply be commonly known information about a contractor's business. But if his business is a private business or a partnership, both of which are not required to publish annual statements, this information would not be publicly available without going directly to the owner. At the corporate level however, this type of information is usually something that is critical to their production capability. In these cases, if the company's competitors had access to such information it could result in lower sales or reduced profit for the company. This type of information is usually closely guarded by the company being analyzed and is handled very carefully by the activities conducting the analysis. It is important to realize that without access to such non-public and sensitive data, the depth

and accuracy of the DOD's financial analysis would be greatly hindered.

D. EXPERTISE OF INDIVIDUALS CONDUCTING THE ANALYSIS

The expertise of the different individuals conducting financial analysis within the DOD varies greatly among the agencies conducting the analysis and it appears to be directly correlated to the level of education that they have achieved.

The expertise on financial matters of the analysts at the DCMC is somewhat limited. These government service employees, who only perform financial analysis as a collateral duty, do not require an in-depth knowledge of financial analysis. There is no requirement for these employees to possess such a knowledge because the majority of the analysis they perform entails filling in the blocks of standardized forms. Therefore, many of the analysts do not have any formal education in Accounting or Business.

The financial analysis expertise of the auditors conducting financial analysis at the DCAA is far greater than their education level indicates. The majority of these auditors hold a Bachelors degree in accounting, with a small portion having Masters degrees. However, the knowledge they possess on accounting matters far exceeds the knowledge they have received through formal education. The accounting expertise that the DCAA possesses in its analysis is great because, instead of pulling the numbers straight off the financial statements and taking them at their face value, the DCAA has the knowledge and ability to search through a company's working papers and find out how such numbers were arrived at.

The overall level of expertise on matters concerning financial analysis is greatest at those activities who are conducting financial analysis in support of their respective Service Secretaries. These analysts possess a broad range of

knowledge in economics, matrix algebra, statistics, and advanced accounting. Their education level is also greater than their counterparts; most of these analysts possess a Masters in either Economics or Business and many have completed Doctoral programs. They are the leaders in their profession, as is evidenced by the analysis and research they conduct.

E. USING IN-HOUSE MODELS VS USING OTHERS MODELS OF ANALYSIS

The use of either in-house models or models that others have constructed is closely correlated with the education and level of expertise of those individuals conducting the analysis.

This is evidenced by the analysis conducted at the DCMC. Their form-guided analysis process focuses on ratio analysis, and specifically liquidity ratios. The DLA form 1407 they use gives them a step-by-step method for conducting their analysis. And the rules of the Current ratio being greater than two, and the Quick ratio being one or greater, are rules that are commonly applied throughout the financial and accounting fields. Although their methods of analysis are rather simplistic, they do provide a valuable service by providing the contracting officer with a fairly reliable assessment of the company's short term financial position.

The analysis conducted by the DCAA is more in-depth than that of the DCMC, however they also rely on the use of other people's models to complete their analysis. The Z-Score model that much of their analysis relies upon closely resembles that done by Altman in the 1960's, using the same group of five ratios. The only difference between the DCAA's model and Altman's model, is the weight assigned to two of the ratios, Working capital/Total assets and Sales/Total sales. The additional analysis conducted by the DCAA involves cash flows and liquidity analysis, much like the financial analysis that

has been conducted for profit maximization in the past.

The Army's ACRAPB also relies upon analytical techniques developed by others. And the Army even goes as far as to rely on the analytical findings of others, as they use corporate bond ratings that are computed by third party bond rating firms. However, they do complete some of their own analysis of firms by collecting a large amount of current information published on these firms. They then analyze this information in an attempt to develop and predict future sales and business opportunities of these companies. Additionally, these analysts conduct the more traditional ratio analysis to support their findings.

The analysis conducted by the NCA is the first example of locally developed or in-house analysis. The Dagel model, that the Navy relies heavily upon, was developed in 1990 specifically for the Navy by the NCA and is commonly referred to as the Navy's Z-Score model. The development of such a model by the NCA is a clear indication of the expertise and the level of education that this activity possess. The NCA also relies on ratio analysis, as do most of the other activities, to support their model's findings.

The other activity that has developed their own in house model for financial analysis is the Air Forces's OEBM. Although they use the findings of others, like Standard & Poor and Moody's, the way they classify these findings into acceptable and non- acceptable categories is their own model. They have used a combination of both "off the shelf" and locally generated analytical techniques to develop a reliable and easy to use model. Although some could argue that they are benefiting from the work of others, I believe it is an indication of their education and expertise in financial analysis that has lead them to the methods they are employing.

It should be apparent to the reader, that none of the

activities involved in financial analysis rely explicitly on analytical techniques of their own. Instead most use a combination of in house and out-of-house analytical techniques. It should also be apparent that the level of use in-house models for analysis can be directly attributed to the education and expertise of those conducting the analysis.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The following conclusions have been drawn about the primary and secondary research questions.

1. Current State of Financial Analysis

The Department of Defense is currently very actively involved in the financial analysis of private sector firms. This analysis is playing a greater role than it has ever before, as the ability to absorb losses due to failed contractors is diminishing. The DOD, as well each of the individual services, conducts financial analysis for the purposes of failure prediction in both contract and industrial base support.

2. Financial Analysis as Defined by The DOD

Financial analysis, as defined within the DOD, is the practice of accurately predicting financial distress among the private companies it contracts with. The prediction of this distress is accomplished through a combination of different approaches, depending on the individual activity performing the analysis. Some of the different analytical approaches include the use of multivariate discriminate analysis models, models based on the corporate bond ratings of the companies in question, and the more traditional approach of financial ratio analysis.

3. Who is Involved in Financial Analysis in The DOD

The activities involved in financial analysis of private sector firms within the DOD can be categorized into the two separate stages of the contracting and procurement process they are involved in.

First, there are those activities that are involved at a contract's inception. These are the Defense Contract Management Command, and the Defense Contract Audit Agency. The DCAA is also involved in financial analysis of the

contractor's health throughout the contract duration.

Secondly, there are those activities who are not directly involved in the contracting process, but have an interest in their individual service's industrial base as a whole. These activities include the Naval Center for Cost Analysis, the Army's Center for Resource Analysis and Business Practices, and the Air Force's Office of Economic and Business Management. The analysis they conduct is used in the milestone review process to determine the financial condition a specific contractor, and if it can continue the contract through the next phase of construction. Additional analysis is used during progress payment release proceedings and during industrial base reviews.

4. Why Are These Activities Involved in Financial Analysis And to Whom Do They Provide Their Information

These activities are involved in financial analysis to insure that the individual contractor performing on a single contract is financially capable of completion, and to monitor the status of the military's industrial base to insure that this base remains strong and in place for future requirements.

The commands and activities to which each of these activities provide their analysis can also be divided into the two stages of contract completion. The Defense Contract Management Command and the Defense Contract Audit Agency provide the information and recommendations they obtain to the individual contracting officer letting the contract. The Contracting officer then uses this analysis to make a determination as to who will receive the contract.

The Naval Center for Cost Analysis, the Army's Center for Resource Analysis and Business Practices, and the Air Force's Office of Business and Economic Management, all report their analysis and recommendations to the Assistant Secretary of Financial Management in each of their respective services, who intern uses the information to make decisions on milestone reviews, progress payment release, and industrial base

strength.

5. Future Changes in The Way Financial Analysis is Conducted

Almost all of the agencies involved in financial analysis do not see any changes in the methods used to conduct their analysis at the present time. The only activity that is actively pursuing alternative forms of analysis is the Air Force's Office of Economic and Business Management. The director of the OEBM indicated that he had directed the two PHD's in his office to conduct further analysis and to write a paper on the various types of financial analysis in use. He is doing so in an effort to determine if the present type of financial analysis that his office is using, bond analysis, is the best way of determining a company's financial health.

B. RECOMMENDATIONS

The recommendations based on the research in this thesis are as follows:

- There appears to be a wide enough variety in the different financial analysis approaches being used that a follow on thesis could be conducted on which specific method of analysis will give the best prediction of financial distress.

- A follow-on thesis could also be conducted on, perhaps assisting in, the research presently being conducted by the OEBM.

- A follow-on thesis could research the advantages of standardizing the practice of financial analysis of private sector firms within the DOD.

APPENDIX A. (TELEPHONE SURVEY FORM)

1. Is your activity involved in the financial analysis of private sector firms who conduct business with the DOD?
2. What is the mission of your activity as it relates to financial analysis?
3. How is your activity organized concerning financial analysis, and to whom does it report its findings to?
4. Who are the activities and or individuals that task your agency to conduct financial analysis?
5. Under what conditions does you activity conduct financial analysis?
6. What analytical processes does your analysts employ in their completion of the analysis?
7. Are techniques that you use, technics that your activity has developed or are these technics that others have previously developed?
8. What are the sources of the data, that your activity uses in its analysis?
9. Is this data, public or non public data?
10. Is there any one financial area that your analysis focuses on more than others?
11. Is your analysis more concerned with the long term or the short term financial health of the firm being

evaluated?

12. What is the education level of the individuals conducting financial analysis at your activity?
13. Are there any plans to change the way financial analysis is presently being conducted in the near future?
14. Are you aware of any other activity in your service or the other services that also perform financial analysis?

APPENDIX B. (PHONE DIRECTORY)

Air Force

Office of Economic and Business Management
Director, Walter Hosey; DSN 227-1152
Analyst, LCOL Clay Chund; (703) 693-9348
Analyst, LT Neal Rappaort; DSN 227-1152

ARMY

Center for Resource Analysis and Business Practices
Analysts, MAJ Norman Lier; (703) 693-6564

DCAA

Defense Contract Audit Agency
Field Office, San Francisco
Supervisor of Audits, Benson Jung; (510) 713-0586

DCMC

Defense Contract Management Command
Area Office, San Francisco
Analyst, Robert Pricert; (408) 541-7063
District Office West, Los Angeles
Supervisor, Richard Perez; (310) 335-4257
Headquarters, Washington
Proposals, Steve Kern (703) 274-4138

NAVY

Naval Center for Cost Analysis
Director, Brian Flynn; (703) 604-0301
Analyst, H. Dagel; (703) 604-0314

APPENDIX C. (DCMC FORM 1407)

FORWARD SURVEY OF PROSPECTIVE CONTRACTOR FINANCIAL CAPABILITY	SERIAL NO. (For surveying activity use)	FORM APPROVED OMB NO. 9000-0011
PROSPECTIVE CONTRACTOR		

Public reporting burden for this collection of information is estimated to average 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to the FAR Secretariat (VRS), Office of the Federal Acquisitions and Regulatory Policy, GSA, Washington, D.C. 20405; and to the Office of Management and Budget, Paperwork Reduction Project (9000-0011), Washington, D.C. 20503. *ANY BLOCK MARKED * INDICATES N/A or SEE NARRATIVE*

SECTION I - RECOMMENDATION

1. RECOMMENDED

a. COMPLETE AWARD
 b. PARTIAL AWARD (Quantity: _____)
 c. NO AWARD

2. TOTAL OFFERED PRICE \$ _____

3. NARRATIVE _____

IF CONTINUATION SHEETS ATTACHED - MARK HERE

4. SURVEY MADE BY	a. SIGNATURE AND OFFICE (include typed or printed name)	b. TELEPHONE NO.	c. DATE SIGNED
5. SURVEY REVIEWING OFFICIAL	a. SIGNATURE AND OFFICE (include typed or printed name)	b. TELEPHONE NO.	c. DATE SIGNED

AUTHORIZED FOR LOCAL REPRODUCTION
 Previous edition is usable

EXPIRATION DATE: 9-30-91

1407-103

STANDARD FORM 1407

(REV. 9-88)

Prescribed by GSA - FAR (46 CFR) 53.209-1(c)

SECTION II - GENERAL

1. TYPE OF COMPANY <input type="checkbox"/> CORPORATION <input type="checkbox"/> PARTNERSHIP <input type="checkbox"/> SUBSIDIARY <input type="checkbox"/> DIVISION <input type="checkbox"/> PROPRIETORSHIP <input type="checkbox"/> OTHER (SPECIFY)	3. NAME AND ADDRESS OF: a. PARENT CO. b. SUBSIDIARIES
2. YEAR ESTABLISHED:	

SECTION III - BALANCE SHEET/PROFIT AND LOSS STATEMENT

PART A - LATEST BALANCE SHEET		PART B - LATEST PROFIT AND LOSS STATEMENT	
1. DATE	2. FILED WITH	1. CURRENT PERIOD	2. FILED WITH
		a. FROM	b. TO
3. FINANCIAL POSITION		3. NET SALES	a. CURRENT PERIOD
a. Cash	\$		\$
b. Accounts Receivable			b. First prior fiscal yr.
c. Inventory			c. Second prior FY.
d. Other Current Assets			
e. Total Current Assets		4. NET INCOME BEFORE TAXES	a. CURRENT PERIOD
f. Fixed Assets			\$
g. Current Liabilities			b. First prior fiscal yr.
h. Long Term Liabilities		c. Second prior FY.	
i. Total Liabilities		PART C - OTHER	
j. Net Worth		1. FISCAL YEAR ENDS:	
4. WORKING CAPITAL (Current Assets less Current Liabilities)		2. BALANCE SHEETS AND PROFIT AND LOSS STATEMENTS HAVE BEEN CERTIFIED	a. THROUGH (Date) b. BY (Signature)
5. RATIOS		3. OTHER PERTINENT DATA	
a. CURRENT ASSETS TO CURRENT LIABILITIES	b. ACID TEST (Cash, temporary investments held in lieu of cash and current receivables)	c. TOTAL LIABILITIES TO NET WORTH	

SECTION IV - PROSPECTIVE CONTRACTOR'S FINANCIAL ARRANGEMENTS

Mark "X" in appropriate column.

	YES	NO
1. USE OF OWN RESOURCES		
2. USE OF BANK CREDITS		
3. OTHER (Specify)		

4. INDEPENDANT ANALYSIS OF FINANCIAL POSITION SUPPORTS THE STATEMENTS SHOWN IN ITEMS 1, 2, AND 3. YES NO (If "NO", explain)

SECTION V - GOVERNMENT FINANCIAL AID

1. TO BE REQUESTED IN CONNECTION WITH PERFORMANCE OF PROPOSED CONTRACT

	YES	NO
a. PROGRESS PAYMENT(S)		
b. GUARANTEED LOAN		
c. ADVANCE PAYMENTS		

2. EXPLAIN ANY "YES" ANSWERS TO ITEMS 1a, b, AND c

3. FINANCIAL AID CURRENTLY OBTAINED FROM THE GOVERNMENT

Complete items below only if item a., is marked "YES."

a. PROSPECTIVE CONTRACTOR RECEIVES GOVT. FINANCING AT PRESENT	b. IS LIQUIDATION CURRENT	c. AMOUNT OF UNLIQUIDATED PROGRESS PAYMENTS	DOLLAR AMOUNTS	
			(a) AUTHORIZED	(b) IN USE
			a. Guaranteed Loans	\$
b. Advance payments	\$	\$		

4. LIST THE GOVERNMENT AGENCIES INVOLVED

5. SHOW THE APPLICABLE CONTRACT NOS.

SECTION VI - BUSINESS AND FINANCIAL REPUTATION

1. COMMENTS OF PROSPECTIVE CONTRACTOR'S BANK

2. COMMENTS OF TRADE CREDITORS

3. COMMENTS AND REPORTS OF COMMERCIAL FINANCIAL SERVICES AND CREDIT ORGANIZATIONS (Such as Dun & Bradstreet, Standard & Poor, etc.)

4. MOST RECENT CREDIT RATING a. DATE

b. BY

5. DOES PRICING APPEAR UNREALISTICALLY LOW?

YES NO (If YES, explain in Section I NARRATIVE)

6. DESCRIBE ANY OUTSTANDING LIENS OR JUDGEMENTS

SECTION VII - SALES (000'S) FOR NEXT SIX QUARTERS

CATEGORY	1	2	3	4	5	6	TOTAL
1. CURRENT CONTRACT SALES (Backlog)	\$	\$	\$	\$	\$	\$	\$
A. GOVERNMENT (Prime & Subcontract)							
B. COMMERCIAL							
2. ANTICIPATED ADDITIONAL SALES							
A. GOVERNMENT (Prime and Subcontractor)							
B. COMMERCIAL							
3. TOTALS							

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APPENDIX D. (DCMC SAMPLE REPORT)

05/26/95

11:25

408 541 7091

DCMDW-GFQ

003

SECTION II - GENERAL					
1. TYPE OF COMPANY			3. NAME AND ADDRESS OF:		
<input checked="" type="checkbox"/> CORPORATION		<input type="checkbox"/> PARTNERSHIP	a. PARENT CO.		
<input type="checkbox"/> SUBSIDIARY		<input type="checkbox"/> DIVISION	b. SUBSIDIARIES		
<input type="checkbox"/> PROPRIETORSHIP		<input type="checkbox"/> OTHER (SPECIFY)			
2. YEAR ESTABLISHED: 1981					
SECTION III - BALANCE SHEET/PROFIT AND LOSS STATEMENT					
PART A - LATEST BALANCE SHEET			PART B - LATEST PROFIT AND LOSS STATEMENT		
1. DATE		2. FILED WITH	1. CURRENT PERIOD		2. FILED WITH
95/03/31		DCMDW-GFOS	a. FROM 95/01/01	b. TO 95/03/31	DCHAO-GFOS
3. FINANCIAL POSITION					
a. Cash		\$ 152,117	3. NET SALES	a. CURRENT PERIOD \$ 1,761,797	
b. Accounts Receivable		805,240		b. First prior fiscal yr. 8,786,407	
c. Inventory		406,236		c. Second prior FY. 4,418,361	
d. Other Current Assets		437			
e. Total Current Assets		1,364,030			
f. Fixed Assets		342,981	4. NET PROFITS BEFORE TAXES	a. CURRENT PERIOD \$ 143,089	
g. Current Liabilities		659,326		b. First prior fiscal yr. 42,698	
h. Long Term Liabilities		16,100		c. Second prior FY. 7,839	
i. Total Liabilities		675,426	PART C - OTHER		
j. Net Worth		1,069,197	1. FISCAL YEAR ENDS: DEC 31		
4. WORKING CAPITAL (Current Assets less Current Liabilities)		704,704	2. BALANCE SHEETS AND PROFIT AND LOSS STATEMENTS HAVE BEEN CERTIFIED		
			a. THROUGH (Date) 95/03/31		
			b. BY (Signature) XXXXXXXXXXXXXXXXXXXX		
5. RATIOS			3. OTHER PERTINENT DATA		
a. CURRENT ASSETS TO CURRENT LIABILITIES	b. ACID TEST (Cash, temporary investments held in lieu of cash and current receivables)	c. TOTAL LIABILITIES TO NET WORTH			
2.1 : 1	1.5 : 1	0.6 : 1			
SECTION IV - PROSPECTIVE CONTRACTOR'S FINANCIAL ARRANGEMENTS					
Mark "X" in appropriate column.		YES	NO	4. INDEPENDANT ANALYSIS OF FINANCIAL POSITION SUPPORTS THE STATEMENTS SHOWN IN ITEMS 1, 2, AND 3	
1. USE OF OWN RESOURCES		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (If "NO", explain)	
2. USE OF BANK CREDITS		<input checked="" type="checkbox"/>			
3. OTHER (Specify)					
SECTION V - GOVERNMENT FINANCIAL AID					
1. TO BE REQUESTED IN CONNECTION WITH PERFORMANCE OF PROPOSED CONTRACT			2. EXPLAIN ANY "YES" ANSWERS TO ITEMS 1a, b, AND c		
Mark "X" in appropriate column.			AUTHORIZED BY RFP		
a. PROGRESS PAYMENT(s)		<input checked="" type="checkbox"/>			
b. GUARANTEED LOAN			<input checked="" type="checkbox"/>		
c. ADVANCE PAYMENTS			<input checked="" type="checkbox"/>		
3. FINANCIAL AID CURRENTLY OBTAINED FROM THE GOVERNMENT					
a. PROSPECTIVE CONTRACTOR RECEIVES GOV'T. FINANCING AT PRESENT					
Complete items below only if item a., is marked "YES."		b. IS LIQUIDATION CURRENT	c. AMOUNT OF UNLIQUIDATED PROGRESS PAYMENTS	DOLLAR AMOUNTS	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	\$ 403,667	(a) AUTHORIZED	
				b. IN USE	
				a. Guaranteed Loans \$	
				b. Advance payments \$	
4. LIST THE GOVERNMENT AGENCIES INVOLVED			5. SHOW THE APPLICABLE CONTRACT NOS.		
KELLY AFB NAVAL SURFACE WARFARE CTR			F41608-93-D-XXXX N00197-92-C-XXXX		

PREAWARD SURVEY OF PROSPECTIVE CONTRACTOR FINANCIAL CAPABILITY	SERIAL NO. (For surveying activity use) S0507AXXXX	FORM APPROVED OMB NO. 9000-0011
	PROSPECTIVE CONTRACTOR XXXXXX	

Public reporting burden for this collection of information is estimated to average 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to the FAR Secretariat (VRS), Office of the Federal Acquisitions and Regulatory Policy, GSA, Washington, D.C. 20405; and to the Office of Management and Budget, Paperwork Reduction Project (9000-0011), Washington, D.C. 20503.

"ANY BLOCK MARKED * INDICATES N/A or SEE NARRATIVE"

SECTION I - RECOMMENDATION

1. RECOMMENDED

a. COMPLETE AWARD b. PARTIAL AWARD (Quantity:) c. NO AWARD

2. TOTAL OFFERED PRICE \$ 2.3MM

3. NARRATIVE

In response to solicitation DAAB01-95-R-XXXX, XXXXXXXXXXXX1, a small business, has submitted an offer of \$2.3MM to provide dummy missile and alignment fixtures. Depending on the timing and size of options, the contract could last up to three years, including the first article. The contract will be FFP with Government progress payments. The recommendation is contingent on those parameters.

The working capital (WC) required for this effort is estimated at \$252M, based on 15% of the annualized contract price of maximum option production. The factor is based on judgement and experience with this type of contract. Financial statements submitted by the offeror show net WC (current assets - current liabilities) of \$705M, which is more than adequate. Further, using the industry sales/WC ratio of 11.4:1, the contractor's WC should support annual sales of \$8MM, which compares favorably to XXXXX's forecast of \$6.5MM. XXXXXXXXX also has unused bank credit of \$550M.

The contractor's current ratio (current assets /current liab.) of 2.1:1 compares well with the industry average of 1.6:1, as does the more conservative quick ratio (cash - trade accts receivable /current liab.) of 1.5:1 with the average of 1:1. These ratios indicate an adequate liquidity position and the ability to keep pace with current operating expenses. In calculating the above current ratio and WC, this analyst conservatively excluded \$38M in non-trade accounts receivable from current assets.

The contractor's debt ratio (total liab./net worth) of 0.6:1 compares very favorably with the industry average of 1.4:1, indicating that the contractor carries a moderate amount of debt and that the owners have provided sufficient protection for the creditors.

Comparative ratios are in Robert Morris Associates Annual Statement Studies 1994 for SIC 3599.

Sales have been variable, but profitability has increased, over the last several accounting periods. As calculated by this analyst, cash flow from operations was negative in 1993 and positive in 1994.

Given an overall good financial condition and sufficient WC to support the expected contract, an AWARD is recommended. The recommendation is for this solicitation only.

Note: M = \$thousand MM = \$million

IF CONTINUATION SHEETS ATTACHED - MARK HERE

4. SURVEY MADE BY	a. SIGNATURE AND OFFICE (Include typed or printed name) RALPH MASON PRITCHETT DCMDW-GFOS	b. TELEPHONE NO. 408-541-7063	c. DATE SIGNED 95/05/04
	5. SURVEY REVIEWING OFFICIAL	a. SIGNATURE AND OFFICE (Include typed or printed name) DAVID D. SCOTT DCMDW-GFOS	b. TELEPHONE NO. 408-541-7052

APPENDIX E. (DCAA ANALYSIS INSTRUCTIONS)

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¶4-803.2 a.

(5) A contractor's refusal to certify its overhead proposal as required by DFARS 42.770.

(6) Failure to pay the minimum wages required by the Davis-Bacon Act, Walsh-Healey Public Contract Act, or the Service Contract Act.

b. While DCAA does not have responsibility for auditing government operations, auditors should report situations where it appears to the auditor that any government official has failed to comply with specific regulatory requirements or is grossly negligent in fulfilling his or her responsibility resulting in substantial harm to the government interest.

4-803.3 Audit Responsibilities

When serious weaknesses causing major audit problems are encountered during audit performance, the auditor should communicate these to contractor or procuring activity officials authorized to make a decision. The notification should be made at the earliest possible time. The auditor should not wait until the final exit conference or the issuance of the audit report. In addition, the communication should be written whenever possible. Document any oral discussions by appropriate memorandums or notations in the working papers.

4-803.4 Reporting Requirements

a. When an FAO encounters unsatisfactory conditions in contractor operations, notify the ACO. The regional office should become involved promptly and actively.

b. When an FAO encounters unsatisfactory conditions in government operations, the regional office should become involved promptly.

c. If the condition is not or cannot be corrected after all FAO and regional office efforts have been exhausted, prepare a report describing the condition along with the actions taken to correct it and submit it through the regional director to Headquarters, Attention: O and DL. Before the report is submitted, the regional director will assure that it contains all pertinent facts and a comprehensive explanation of all actions taken to resolve the matter. Wherever determinable, it should include the monetary amount involved.

4-804 Contractor Financial Capability Reviews and Financial Jeopardy Reporting

4-804.1 Introduction

a. Auditors should be alert to conditions which may indicate potential contractor financial instability or jeopardy in all audit situations, especially during contractor preaward surveys (5-200); reviews of cash flow forecasts (14-300), progress payment requests (5-300), advance funding (14-504), and certain functional areas; or in situations such as plant closings, terminations, program cancellations, stretch-outs, slow payment to creditors, and/or evidence in financial statements of financial instability.

b. Financial difficulties encountered by contractors or subcontractors may disrupt production schedules; cause inefficient use of labor and materials; and, if connected with guaranteed loans, advance payments or progress payments, result in monetary loss to the government. If contractor financial crises occur in the course of contract performance, the government's need for continued performance may make guaranteed loans or advance payments necessary, even though monetary losses are possible.

c. Responsibilities and other implementing guidance on financial capability reviews are included in FAR 53.301-1407, "Preaward Survey of Prospective Contractor Financial Capability;" DFARS 9.1, "Responsible Prospective Contractors;" and DFARS 32.172, "Financial Responsibility of Contractors."

4-804.2 Audit Responsibilities

a. Although existence of contractor financial difficulties will not necessarily result in financial jeopardy, the auditor should evaluate the impact of the adverse conditions on overall operations of the contractor and their resultant effect on

contract performance. The auditor's conclusion that circumstances require a financial capability review should be coordinated, in writing, with the ACO to ensure that all pertinent facts and data available to the ACO are considered in performance of the review and the development of evaluation findings. However, most financial capability reviews are performed in response to requests by the ACO.

b. The ACO is primarily responsible for monitoring the financial condition of a contractor once a financial jeopardy condition has been reported. However, the auditor has the responsibility to advise the ACO of any significant changes that become known during other audit work performed at the contractor or to provide any other assistance requested by the ACO.

c. Formally advise the ACO of any access to records problems encountered during the financial capability review and solicit his or her assistance as required (1-504).

4-804.3 Audit Procedures

a. The auditor, ACO, or PCO may become aware of contractor financial information that indicates a potentially adverse financial condition which could affect performance on government contracts. In reviewing this area, the auditor should consider information that may indicate solvency problems or raise a question about the continued existence of the contractor without necessarily indicating potential solvency problems. Insolvency may occur either when (1) the firm is not able to meet debts or discharge liabilities or (2) the total liabilities exceed a fair valuation of the firm's assets (negative net worth).

b. Information about pertinent solvency indicators and their use by the auditor is contained in the following paragraphs.

4-804.4 Indicators of Solvency Problems

This area relates to negative financial trends and conditions such as recurring operating losses, working capital deficiencies, negative cash flow from operations, adverse financial ratios, defaults on loan agreements, denial of usual trade credit from suppliers, restructuring of debt, and

noncompliance with statutory capital requirements. Specifically, the auditor should consider the more significant types of indicators detailed below:

a. Z Score Prediction Model

(1) The auditor's vulnerability assessment of the contractor should be influenced by the strength of a contractor's financial condition. Failure prediction models in general provide a means to readily assess a contractor's financial health in terms of the likelihood of bankruptcy in the near future. Therefore, the auditor should analyze the contractor's financial data by means of a financial failure prediction model. One such model, the "Z score" prediction model uses various financial ratios in arriving at a composite score. When computed periodically, the Z score can identify a deteriorating financial condition which itself can be as significant as the actual score.

(2) Meaning of the Z Score. The model uses multiple discriminant analysis to calculate a single score or Z value for a company. The Z value is useful in predicting bankruptcy potential. Although the model should not be relied upon to support a financial condition assessment by itself, it does provide an initial alert to the auditor that further analysis is needed. Research on actual firms has established that a score of 2.675 from the model is a practical cutoff point indicating that companies scoring less than 2.675 are assumed to have characteristics similar to past bankruptcies. Establishing a range around the 2.675 value provides the following predictions:

<u>The Value</u>	<u>Prediction</u>
3.00 or more	Very little or No chance of bankruptcy
2.68 to 2.99	A Remote chance of bankruptcy
1.81 to 2.67	Possible chance of bankruptcy
1.80 or less	Probable chance of bankruptcy

(3) The model uses five financial ratios, considered simultaneously, to calculate the Z value. Pertinent financial data necessary to calculate the Z value can normally be derived from the contractor's financial statements. For this analysis, use information from the contractor's most recently completed fiscal year to calculate the Z value. The functional equation is expressed as follows:

$$Z = .012X1 + .014X2 + .033X3 + .006X4 + .010X5$$

Where X1 = Working Capital/Total Assets

X2 = Retained Earnings/Total Assets

X3 = Earnings Before Interest and Taxes/Total Assets

X4 = Market Value of Equity/Book Value of Total Debt

X5 = Sales/Total Assets

(4) The variables should be expressed in absolute terms, e.g., 20 percent is expressed as 20.0, 200 percent as 200.0, etc. To do otherwise will yield an erroneously low Z score. The following paragraphs provide a brief description of each variable considered in the model.

X1 = Working Capital/Total Assets. This ratio is a measure of the net liquid assets of the firm relative to the total capitalization. Working capital is defined as the difference between current assets and current liabilities. Ordinarily, a firm experiencing consistent operating losses will have shrinking current assets in relation to total assets.

X2 = Retained Earnings/Total Assets. The incidence of failure is much higher in a firm's early years. Therefore, the age of a firm is implicitly considered in this ratio. For example, a relatively young firm will probably show a low RE/TA ratio because it has not had time to build up its cumulative profits.

X3 = Earnings Before Interest and Taxes/Total Assets. This ratio is a measure of the true productivity of the firm's assets, aside from any tax or leverage factors. Since a firm's ultimate existence is based on the earning power of its assets, this ratio is particularly appropriate for analysis of corporate failure. For the computation of earnings before interest and taxes, the auditor should exclude extraordinary items and gains or losses from disposal of a segment of a business.

X4 = Market Value of Equity/Book Value of Total Debt. Equity is measured by the combined market value of all shares of stock, preferred and common, while debt includes both current and long-term. In situations where a company's stock is not publicly traded and the auditor is not

able to determine a market value for the stock, the book value of the stock may be used.

X5 = Sales/Total Assets. This is the financial ratio that illustrates the firm's assets' ability to generate sales. It is one measure of management's capability in dealing with competitive conditions.

b. Bank Line of Credit Requirements

Determine whether the contractor has been able to meet debt payment schedules or has violated any other covenants of its loan agreements. Also review the explanatory notes of the contractor's financial statements to determine whether they include any conditions on financial credit requirements, such as a bank line of credit that requires maintenance of a certain debt-to-equity ratio.

c. Current Ratio

The current ratio is the ratio of current assets to current liabilities. It is a test to determine the ability of a company to liquidate its current obligations and to finance operations in the immediate future. The auditor should view the contractor's industry. A current ratio considered acceptable by most industries is 2:1.

d. Acid Test Ratio

The acid test ratio is the ratio of cash, accounts receivable, and short term investments to current liabilities. It indicates the company's ability to liquidate current liabilities without interrupting the normal business cycle. The contractor's acid test ratio should be compared to a typical satisfactory ratio of 1:1.

e. Liquidation of Accounts Payable

Determine if the contractor is liquidating accounts payable on a timely basis in the ordinary course of business. Obtain or prepare a schedule of the contractor's aged accounts payable similar to the example shown below. In order to assure that the contractor is not recording payments while actually delaying or holding checks, review cancelled checks to determine the reasonableness of the number of lag days between recorded payment dates and check cancellation dates. If the contractor is not liquidating its accounts payable in a timely manner, the reasons should be ascertained.

<u>Accounts Payable</u>	<u>Amount</u>	<u>Percentage</u>
<u>Trade - No. of Days Outstanding</u>		
0-30 days	\$ 191,300	14%
31-60	421,992	31
61-90	262,334	19
91-120	132,570	10
Over 120	<u>347,062</u>	<u>26</u>
Trade	\$ 1,355,258	<u>100%</u>
Other	188,972	
Checks Held	117,174	
Bank Overdraft - Net	<u>\$ 187,567</u>	
Total Accounts Payable	<u>\$ 1,848,971</u>	

f. Funds Availability

Analyze the contractor's cash flow forecasts and determine its ability to meet any projected shortfall of cash flow in the near term (one year), and any classified long term liabilities coming due in the near term. Consideration should be given to plans for liquidating assets, restructuring/increasing debt, delaying expenditures, and increasing ownership equity.

g. Continued Operating Losses

The auditor should be alert to any apparent lack of operating success as evidenced by no net profit being earned for the last completed fiscal year. When working capital deficiencies are noted, explore these situations to determine if the contractor has the ability to obtain additional funds from various capital sources.

h. Filing for Bankruptcy

The auditor may determine that the contractor is about to file or has filed for bankruptcy under Chapter VII (Liquidation), Chapter X (Corporate Reorganizations) or Chapter XI (Arrangements of Unsecured Debts) of the bankruptcy laws. Filing under either Chapter X or XI will normally provide for the appointment of an independent disinterested trustee to assume control of the company for the duration of the bankruptcy proceedings. Neither Chapter X nor Chapter XI proceedings, by themselves, can be considered conclusive evidence that the company will be forced to liquidate. Both, however, give rise to significant uncertainty as to the future operations of the company. This event by itself requires a report to the ACO.

4-804.5 Other Indicators that Raise Questions about Continued Existence

This area relates to internal matters such as labor strikes or uneconomical long-term commitments, or to external matters such as legal proceedings, loss of principal customer or supplier, and uninsured or underinsured catastrophes. Review financial statement opinions expressed by the contractor's independent auditors and analyze any unusual items or comments and ascertain the impact on the contractor's ability to continue as a going concern. Review unusual outstanding loans to other company operations or company officers that would drain financial resources from an operating unit with government contracts. Further, the auditor should focus on the contractor's plans for dealing with adverse conditions, including:

a. Plans to liquidate assets. Review any possible direct or indirect effects of any disposal of assets on government contracts.

b. Plans to borrow money or restructure debt. Review the availability of debt financing, including existing committed credit arrangements such as lines of credit and arrangements for factoring of receivables or sale-leaseback of assets.

c. Plans to reduce or delay expenditures. Review possible direct and indirect effects to reduce or delay capital or maintenance expenditures on government contracts.

d. Plans to increase ownership equity. Review existing or committed arrangements to accelerate cash distributions from affiliates or other investors.

4-804.6 Criteria for Reporting Potential Financial Jeopardy and Auditor's Recommendations

a. When a financial capability review discloses that the contractor has no financial difficulties or that the contractor's financial status indicates a financial condition which is considered adequate for performance on government contracts, the auditor should express such an opinion.

b. When a financial capability review discloses a potential financial jeopardy situation, the likelihood that contract performance is endangered may be considered probable, reasonably possible, or

remote, depending upon the state of the contractor's financial condition. Based on the conditions disclosed by the audit review, the auditor should select one of the opinions using the following table as a guide to assessing the conditions described by the preceding paragraphs. To use the table, the auditor should match the contractor's Z score and two or more of the disclosed conditions with the criteria shown in the table. This will determine the seriousness of the disclosed conditions and the basis of the opinion to be rendered by the auditor.

Criteria for Auditor's Opinion

<u>Condition</u>	<u>Probable</u>	<u>Possible</u>	<u>Remote</u>
1. Z Score	Less than 1.81	Less than 2.68	Less than 3.00
2. Debt Default	Default on existing line of credit	Unable to meet upcoming debt payments	Violation of loan covenant
3. Current Ratio	Less than .5:1	Less than 1:1	Less than 2.0:1
4. Acid Test Ratio	Less than .5:1	Less than .75:1	Less than 1:1
5. Liquidation of A/P	More than 75% outstanding more than 90 days	More than 50% outstanding more than 90 days	More than 25% outstanding more than 90 days
6. Funds Availability	No ability to raise needed funds	Ability to raise some required funds	Ability to raise most required funds
7. Continued Operating Losses	Negative net worth	No net profit past 2 periods	No net profit last period
8. Filing of Bankruptcy	Yes	No	No
9. Other Indicators	Labor strikes; Uninsured catastrophes	Labor strikes; Underinsured catastrophes	Labor strikes; Underinsured catastrophes

c. The following paragraphs provide the auditor with the recommendations considered appropriate given the seriousness of the financial jeopardy condition. In addition to the recommendations suggested below, the auditor should advise the ACO to selectively scrutinize future progress payments requested by the contractor to ensure that they are computed in accordance with contract terms. The auditor should also report any known weaknesses in the contractor's billing procedures (see 5-300) which would necessitate a restriction of contract financing through progress payments. The existence of financial jeopardy greatly increases the government's risk regarding billings. Consequently, the scheduling of a billing system review should be considered.

(1) If the contractor's financial jeopardy

is considered probable to endanger contract performance, the auditor should advise the ACO that the contractor is not likely to perform the government contract. This means that in the auditor's judgment this future event is likely to occur and that ACO actions (such as advance payments, guaranteed loans, contract novation, assignment, etc.) are necessary to protect the government's interest. The auditor should recommend to the ACO that the contractor be required to submit a status report monthly (or until the adverse conditions are corrected) which covers the contractor's plans for and progress towards mitigating the adverse condition.

(2) If the contractor's financial jeopardy is considered reasonably possible to endanger contract performance, the auditor

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should advise the ACO that government action may be necessary for the contractor to fulfill its obligation under the contract. The classification of a contractor under this category means that, in the auditor's judgment, contract nonperformance is possible but less than probable to occur. The auditor should recommend to the ACO that the contractor be required to submit a report quarterly (or until the adverse conditions are corrected) covering the contractor's plans for mitigating the adverse condition.

(3) If the chance of contractor financial jeopardy is considered remote and contract performance is not likely to be endangered, there is no necessity for the contractor to develop any corrective action plan. This categorization is used if the contractor has some financial problems, but the chance of them affecting performance on government contracts is slight. Depending upon the contractor's current financial strength, the auditor may wish to recommend to the ACO that the contractor be required to submit financial statements on a more frequent basis (e.g., quarterly, monthly) so the ACO can more easily monitor the contractor's financial condition.

d. If the auditor encounters or receives information which raises suspicions of fraud or other criminal activity (such as dummy loans, receivables, or inflated inventories), he/she should follow the procedures outlined in 4-700.

4-804.7 Format and Content of Audit Reports

a. The guidance in 10-1200 and Figure 10-12-1 of Chapter 10 will be used in preparing and issuing audit reports on reviews of contractor's financial capability.

b. If the auditor's review is partially based upon the use of contractor financial statements that have not been reviewed or audited by an independent accountant, and the auditor has reason to believe that these statements cannot be relied upon, the auditor should recommend to the ACO that the contractor arrange for a review or audit of the statements. In this case, the audit report results should contain appropriate qualifying language.

4-804.8 Financial Capability/Jeopardy Reporting Requirements

a. An audit report on a financial capability review will be issued promptly in the following circumstances:

(1) When the review is performed in response to a request by a contracting officer or other authorized person or activity, whether or not a potential financial jeopardy is disclosed.

(2) When the review is DCAA-initiated and discloses a potential financial jeopardy.

b. Prepare audit reports in accordance with 10-1200. To ensure that all available facts have been considered, the auditor will discuss the findings with the cognizant ACO and with the contractor, prior to report issuance. If the finding resulted from an evaluation performed on the basis of an audit request, forward the report to the requester and provide a copy to the ACO. Otherwise, address the report to the cognizant ACO. Also provide a copy of the report to the regional office and transmit another through the regional office to Headquarters, Attention: O, for possible distribution to OSD and Military Department levels. If not already contained in the report, provide in the transmittal memorandum the reactions of the ACO and, when appropriate, the contractor. Process reports as expeditiously as possible to ensure that any action required is taken promptly to protect the government's interests.

c. Submit the report to the corporate ACO only in those cases where the auditor evaluating the situation also has audit cognizance of the contractor's corporate records. Under these circumstances, the auditor is in a position to form some judgment as to whether the conditions being reported tend to adversely affect the contractor's company-wide financial position.

d. Where conditions as described above are disclosed at a contractor location which is part of a multidivision corporation, and the auditor does not have audit cognizance of the contractor's corporate records, the auditor will discuss the matter with the local ACO. To ensure that all available facts have been considered, the auditor will also discuss the findings with

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the cognizant contract audit coordinator (CAC) or corporate home office auditor (CHOA), as may be applicable. The auditor will then send a report on the indications of financial jeopardy through the regional office to Headquarters, as indicated

in b. above.

e. Identify and mark all financial capability/jeopardy reports "FOR OFFICIAL USE ONLY" in accordance with 10-203.10.

APPENDIX F. (DCAA SAMPLE REPORT)

DEFENSE CONTRACT AUDIT AGENCY
AUDIT REPORT

15 OCTOBER 199X

PREPARED FOR: Administrative Contracting Officer
ATTN: DCMAC-XXXX (J. Doe)
Defense Logistics Agency
Defense Contract Management Area Office, Memphis
1250 South River Road
Memphis, TN 38000-1000

PREPARED BY: Park Branch Office
4075 Southern Avenue, Suite 260
Memphis, TN 38111-1111
Telephone No. 901-776-xxx1
FAX No. 901-776-xxx9

SUBJECT: Audit of Financial Capability

REFERENCES: ACO: Case No. XXX-3A(02)-07
DCAA: Audit Report No. XX38-XXA176XXXX1

CONTRACTOR: XYZ Corporation
5000 University Drive
Selmer, TN 40808

REPORT RELEASE RESTRICTIONS: See Page 13

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FOR OFFICIAL USE ONLY

[*** RPT-176 Report and Cover Example Dated 21 November 1994 ***]

SUBJECT OF AUDIT

We audited the XYZ Corporation's financial status at 30 September 199X to determine if adverse financial conditions exist which could affect performance on government contracts.

The contractor's financial records and related supporting data are the responsibility of the contractor. Our responsibility is to express an opinion on the contractor's financial capability based on our audit.

EXECUTIVE SUMMARY

Our audit disclosed that the contractor's financial condition is unfavorable and may jeopardize its ability to continue performing on contracts. To protect the government, we recommend the ACO consider the following:

1. Require XYZ to provide a quarterly financial briefing that covers cash projections and the status of corrective actions.
2. Selectively review XYZ's future progress payment requests to ensure they are prepared in accordance with contract terms.

SIGNIFICANT ISSUES:

1. Throughout FY 1991, XYZ Corporation relied on short-term financing to sustain operations.
2. Technical problems, rework and inspection are causing cost overruns on some contracts.
3. Key financial indicators show negative trends.
4. Accounts payable are not being liquidated in a timely manner.
5. Short-term financing is available for FY 1992. However, unless XYZ shows a positive cash flow by the fourth quarter of FY 1992, additional financing will not be available for FY 1993.
6. XYZ agrees that our observations of their financial condition are accurate.

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Audit Report No. XX38-XXA176XXXXX1

SCOPE OF AUDIT

We conducted our audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the data and records reviewed are free of material misstatement. An audit includes:

- a. reviewing the contractor's internal controls, assessing control risk, and determining the extent of audit testing needed based on an assessment of control risk;
- b. examining, on a test basis, evidence supporting the amounts and disclosures in the data and records reviewed;
- c. assessing the accounting principles used and significant estimates made by the contractor; and
- d. evaluating the overall presentation.

We used the criteria contained in DFARS 232.172 in the performance of this audit. Our audit of XYZ Corporation's financial capability and its ability to perform on government contracts was based primarily on our review of the following areas:

- a. Minutes of meetings of stockholders, board of directors, and other important committees of the board
- b. Financial ratios, trends, and industry averages
- c. External credit ratings
- d. Loan agreements/guarantees
- e. Contract performance reports
- d. Financial statements
- e. Liquidation of accounts payable
- f. Cash flow analyses including future cash flow projections
- g. Legal proceedings and investigations
- h. Management plans relating to correcting adverse financial conditions

We believe the audit provides a reasonable basis for our opinion.

RESULTS OF AUDIT

AUDITOR'S OPINION:

In our opinion the contractor's financial condition is unfavorable. Our audit of XYZ Corporation's financial capability disclosed that it will have difficulty meeting its near-term financial obligations. As a result, XYZ will not have the financial resources to continue performing on government contracts unless it takes extraordinary management actions.

FOR OFFICIAL USE ONLY

Audit Report No. XX38-XXA176XXXXX1

For the last three years, XYZ has experienced net losses as a result of declining sales and contract cost overruns. These adverse conditions have required XYZ to obtain short term financing to meet ongoing operating costs. XYZ's FY 1992 cash flow projections show that it will have adequate financial resources to continue performing on government contracts during FY 1992 by obtaining short term financing to meet operating costs. However, if XYZ's cash flows are not positive by the fourth quarter of FY 1992, XYZ's existing source of short term financing will not provide additional financing into FY 1993.

As shown on Schedule A, page 11, XYZ has implemented several cost reduction programs to improve its financial condition. If XYZ's financial condition does not improve in FY 1992, its financial capability to continue performing on contracts could be jeopardized. Therefore, we recommend that you request XYZ Corporation to submit its plans for mitigating the adverse conditions and provide a quarterly status report on these plans until the adverse conditions are corrected. The conditions, recommendations, the contractor's response, and our rejoinder begin on page 4.

Considering the possibility of contract nonperformance, we recommend that you selectively scrutinize XYZ's future progress payment requests to ensure that they are computed in accordance with contract terms. We are not aware of any weaknesses in the contractor's billing procedures at this time which would necessitate a restriction of contract financing through progress payments.

The draft audit report was provided and discussed with Mr. Ken Smith, XYZ's Chief Financial Officer on 30 September. XYZ agrees with the information included in this report. XYZ's written response and action plan are enclosed as Attachment 1.

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STATEMENT OF CONDITION AND RECOMMENDATIONS

1. Condition

Our audit disclosed that XYZ Corporation's financial condition is unfavorable. As a result, it is possible that XYZ's ability to perform under government contracts could be jeopardized. Our opinion is based on XYZ Corporation's current condition of financial distress and negative financial trends, and projected cash flow shortfalls from operations for FY 1992. While XYZ Corporation has adequate funds and available financing to continue operations in FY 1992, continued financial distress could impair XYZ Corporation's ability to obtain funds and continue operations in the long term.

The contractor's financial condition is considered unfavorable because of severe financial distress experienced in FY 1991 and continued financial distress anticipated in FY 1992. For this report, financial distress is defined as a condition where on going cash obligations are satisfied by extraordinary management actions to obtain additional funds outside the course of ordinary operations.

XYZ Corporation's financial distress is evidenced by several adverse conditions. Cash flows from operations in FY 1991, were not sufficient to meet cash requirements, requiring management to obtain short-term financing to meet ongoing cash requirements. The shortfall, primarily was a result of declining sales due to the termination of a large government contract. Further, XYZ is experiencing cost overruns on some contracts due to technical problems causing rework and additional inspection. XYZ also has experienced several negative trends in both key financial indicators and pertinent financial ratios. In addition, XYZ is not liquidating accounts payable in a timely manner. XYZ's FY 1992 cash flow projections show that it will need to continue borrowing cash to meet ongoing expenses.

XYZ recently arranged for a new, less stringent line of credit to cover projected cash shortages during FY 1992. This action should sufficiently provide the cash resources for the contractor to remain financially capable to continue operations; however, if XYZ does not improve its financial condition and show a positive cash flow by the fourth quarter of FY 1992, the bank will discontinue the line of credit into FY 1993 and XYZ's ability to perform beyond FY 1992 would be in jeopardy. Specific details on XYZ's unfavorable financial conditions are discussed in the following paragraphs.

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[*** RPT-176 Report and Cover Example Dated 21 Nov 1994 ***]

a. Current Financial Condition

(1) Key Financial Data. The following information is from XYZ's audited financial statements. The information shows significant negative trends in several important areas including current liabilities, sales, net income, and cash flow from operations. Of significance, XYZ Corporation is showing financial distress as it experienced a significant net loss for FY 1991 and was required to borrow money to meet cash requirements. This short term borrowing has resulted in significant increases in current liabilities for FY 1991. XYZ Corporation's key financial statement data, and comparison with prior years' data follow:

<u>Financial Elements</u>	<u>1987</u> <u>(\$000's)</u>	<u>1988</u> <u>(\$000's)</u>	<u>1989</u> <u>(\$000's)</u>	<u>1990</u> <u>(\$000's)</u>	<u>1991</u> <u>(\$000's)</u>
Cash	\$ 114	\$ 150	\$ 186	\$ 180	\$ 60
Receivables	721	700	667	572	669
Current Assets	1,450	1,332	1,107	1,008	886
Total Assets	3,451	3,524	3,611	4,092	4,042
Current Liabilities	1,129	1,045	979	1,253	1,434
Working Capital	1,120	800	552	741	258
Quick Assets	906	850	797	692	513
Long Term Debt	1,291	1,280	1,299	1,485	1,653
Net Income/(Loss)	181	168	134	21	(399)
Depreciation	125	146	142	155	190
Net Sales	5,660	6,130	4,721	5,218	4,382
Equity	1,031	1,199	1,333	1,354	955
Cash Flows:					
From Operations	493	334	296	277	(239)
From Investments	(178)	(172)	(220)	(705)	(222)
From Financing	(306)	(126)	(40)	422	341

(2) Key Financial Ratios. The ratios included in the following schedule were calculated using financial information from XYZ's audited FY 1987 through 1991 financial statements. Industry ratios were calculated using Standard and Poor's Compustat Service's, Inc., database which includes information from annual reports and other financial data reported by listed companies. We used XYZ's industry classification of Transportation Equipment (Standard Industrial Code 9999) to compute the industry ratios.

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	<u>Contractor Ratios</u>					<u>Industry Ratios</u>	<u>Compared to Industry</u>	<u>Ref</u>
	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1991</u>		
Return on Investment	5%	5%	4%	1%	(10%)	3%	Negative	(a)
Capital Turnover	10%	8%	4%	6%	(14%)	5%	Negative	(b)
Current Ratio	128%	127%	113%	80%	62%	115%	Negative	(c)
Financial Leverage	13%	14%	12%	6%	(7%)	9%	Negative	(d)
Short-Term Liquidity	74%	81%	87%	60%	51%	50%	Positive	(e)
Solvency Ratio	235%	194%	171%	202%	323%	152%	Negative	(f)

(a) Return on Investment Ratio. This ratio is a measure of net income as a percentage of the assets utilized (investment) by a company. This ratio measures the percentage of net income generated by each asset dollar employed. It emphasizes the importance of efficient employment of assets in generating net earnings. In FY 1991, XYZ Corporation lost \$.10 for each dollar of assets employed in the company. The average for this industry is \$.03 net income per dollar of assets employed.

(b) Capital Turnover Ratio. The working capital to total assets ratio is a measure of the net liquid assets of the company. Ordinarily, a company experiencing financial distress will have a small percentage of working capital in relation to total assets. Working capital is defined as the difference between current assets and current liabilities. XYZ's net liquid assets are decreasing in relation to the asset dollars employed and are below the industry average.

(c) Current Ratio. The current ratio is a comparison of current assets to current liabilities. It is a test to determine the ability of a company to liquidate its current obligations and to finance operations. XYZ Corporation's current ratio has declined steadily since 1987 and is currently below industry averages.

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(d) Financial Leverage. The cash flow to total debt ratio is an indicator of the adequacy of available funds to satisfy debt obligations. Cash flow is defined as net income plus depreciation, depletion, and amortization. XYZ's cash flow to debt ratio has been steadily decreasing over the past four years. The cash flow to total debt ratio is also unfavorable when compared to the industry average.

(e) Short Term Liquidity (Acid Test Ratio). This ratio compares cash, accounts receivable, and short-term investments to current liabilities. It indicates the company's ability to liquidate current liabilities without interrupting the normal business cycle. The 31 December 1991 acid test ratio is .51 to 1, which is favorable in relation to the industry average of .50 to 1. However, XYZ's acid test ratio has deteriorated considerably over the past two years.

(f) Solvency. This ratio is a measure of the debt burden on the contractor. All liabilities (both short term and long term) and all stockholders equity, including retained earnings, are included in the calculation. While previous years have shown some decline, XYZ's FY 1991 ratio increased considerably as compared to FY 1990 and is well above the industry average.

(3) Bank Line of Credit. The contractor prior bank line of credit required maintenance of a debt-to-equity ratio of not more than 2.4 to 1.0. XYZ's debt-to-equity ratio at [insert date] was 3.23 to 1.0. The contractor has recently negotiated a new line of credit which provides a less stringent ratio requirement of 4.0 to 1.0. However, the bank will not extend the line of credit into FY 1993 unless XYZ's FY 1992 fourth quarter cash flows are positive.

(4) Liquidation of Accounts Payable. XYZ Corporation is not liquidating accounts payable on a timely basis in the ordinary course of business. As the following schedule shows, 55 percent of XYZ's accounts payable are over 60 days old with 26 percent over 120 days.

<u>No. of Days Outstanding</u>	<u>Amount</u>	<u>Percentage</u>
0-30 days	\$ 191,300	14%
31-60 days	421,992	31
61-90 days	262,334	19
91-120 days	132,570	10
Over 120 days	<u>347,062</u>	<u>26</u>
Accounts payable -- Trade	1,355,258	<u>100%</u>
Total Accounts Payable -- Other	188,972	
Total Accounts Payable -- Checks Held	117,174	
Bank Overdraft -- Net	<u>187,567</u>	
Total Accounts Payable	<u>\$1,848,971</u>	

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b. Cash Flow Forecasts

The corporation's cash flow needs are being met with a significant amount of borrowed funds, not from operating income. XYZ anticipates that during FY 1992 additional cash borrowings will be needed to meet expenses. Several major government and commercial programs are encountering additional costs due to technical problems requiring rework and added inspection. This is restricting cash flow from operations and is further decreasing XYZ's available funds. In the past year, XYZ Corporation has taken on considerably more debt in order to diversify into commercial business ventures. This added debt will further reduce cash resources as significant principle and interest payments become due.

XYZ's FY 1992 cash flow forecasts show continued severe financial distress. Although, XYZ's total cash flow forecasts for FY 1992 are negative, XYZ does project positive cash flows for the fourth quarter of FY 1992 which are required for XYZ's existing bank to extend the line of credit into FY 1993. XYZ's cash flow forecasts and the results of our review are summarized, as follows:

XYZ Corporation's Cash Flow Forecast
for FY 1992 (000's)

	Forecast	Questioned	Difference	Ref.
Cash Flow from Operations:				
Gross Income	\$3,461	\$ 150	\$3,311	(1)
Expenses	<u>4,001</u>	<u>120</u>	<u>3,881</u>	(2)
Net Loss	(540)	30	(570)	
Adjustments	<u>190</u>	<u>5</u>	<u>185</u>	(3)
Cash Flow from (for) Operations	\$ (350)	\$ (35)	\$ (385)	
Forecasted Cash From Investments:				
Sale of Equipment.	25		25	(4)
Forecasted Cash from Financing:				
Loan Proceeds	<u>275</u>		<u>275</u>	(5)
Forecasted Cash Increase (Decrease)	<u>\$ (50)</u>	<u>\$ (35)</u>	<u>\$ (85)</u>	

(1) Forecasted gross income includes estimated revenue for the contractor's three product lines. XYZ based its forecasts on (a) actual in-house work contracted for FY 1992 (approximately 83 percent of forecasted gross income) and (b) estimated new contract work based on new sales experienced in the prior three fiscal years. We questioned \$50,000 of forecasted revenue because XYZ included, as contracted work, amounts for a recently terminated small contract.

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(2) XYZ's forecasted expenses consider both fixed and variable expenses. Fixed expenses were based on the previous years' expenses and include depreciation. Fixed utility expenses were also adjusted for estimated annual inflation. Variable expenses were estimated by applying XYZ's average historical percentage of variable expenses revenues for the last three fiscal years to projected revenues. Questioned costs represent variable expenses associated with the terminated contract discussed in (1) above.

(3) The contractor forecasted adjustments to remove noncash transactions in the forecast and add cash transactions not considered by the forecast. Significant adjustments included (a) forecasts of the net difference between beginning and ending accounts receivable and accounts payable (based on the average of the prior three years) and (b) forecasted depreciation based on assets at the time of forecast (the contractor does not anticipate any significant acquisitions for FY 1992). Questioned adjustments were for projected ending accounts payable and receivable balances directly related to the terminated contract discussed in note (1) above.

(4) Because of declines in workload, the contractor is forecasting a sale of manufacturing equipment based on estimated market value. We take no exception to the forecasted amounts.

(5) Amounts shown reflect contractor plans to borrow additional funds to support operations. We take no exception to the forecasted amounts.

c. Funds Availability

While XYZ's cash needs are increasing, the ability to secure additional funds is becoming more difficult. XYZ Corporation's bond rating was recently lowered from BBB to CCC, as a result of XYZ Corporation's current financial condition. Unless the current credit market eases, income from operations improves, or some existing assets are sold, XYZ may experience a critical cash shortage in the future. During FY 1992, XYZ has secured a revolving line of credit which will provide adequate coverage for FY 1992. The credit agreement is in place for a one year period and requires the contractor to maintain a 4 to 1 or lower debt to equity ratio. For this line of credit to continue through FY 1993, XYZ must show positive cash flow from operations beginning in the fourth quarter of FY 1992.

2. Recommendation

We recommend that the ACO require XYZ to provide a quarterly financial briefing to address sensitive program performance and provide status on XYZ's actions to correct the adverse financial conditions. The briefings should cover XYZ's cash projections for the next six months and efforts being made to obtain financing, sell assets, reduce expenses, and generate capital.

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3. Contractor's Response

We discussed the results of audit and provided a copy of the draft report to the contractor's representative, Mr. Jed Samuels, Cash Manager, who agreed that the financial matters disclosed during our review were valid observations of the financial condition as of 30 September 199X. Mr. Samuels stated that corrective actions will be taken to improve the financial condition of the company. Specifically, the company is (i) reorganizing to reduce management and administrative function costs, (ii) reviewing manufacturing processes to identify areas for cost reductions, and (iii) redesigning specific components to take advantage of new manufacturing processes available to the company. The contractor's complete written response and corrective action plan is included as an enclosure to this report.

4. Auditor's Rejoinder

XYZ Corporation is taking positive actions to increase operating margins which could have a significant positive effect on cash flows from operations. We will continue to monitor XYZ's financial condition and advise you on status and any significant changes.

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SCHEDULE A

XYZ CORPORATION'S CORRECTIVE ACTION PLAN

Note: This schedule presents key actions and milestones taken for the contractor's response letter.

(Details omitted from illustration)

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[*** RPT-176 Report and Cover Example Dated 21 Nov 1994 ***]

CONTRACTOR ORGANIZATION AND SYSTEMS

I. Organization.

II. Accounting System.

The detail would describe that information pertinent to the review of financial capability. Address those accounting and other internal control systems that impact this audit. Reference the last audit report on the review of these systems. Also include information on the adequacy of the systems and the current assessment of control risk. Identify any outstanding internal control deficiencies and provide the current status of those deficiencies.

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Selmer, TN 20808

(Copy furnished thru ACO)

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Attachment 1

XYZ CORPORATION'S WRITTEN RESPONSE

(Details omitted from illustration)

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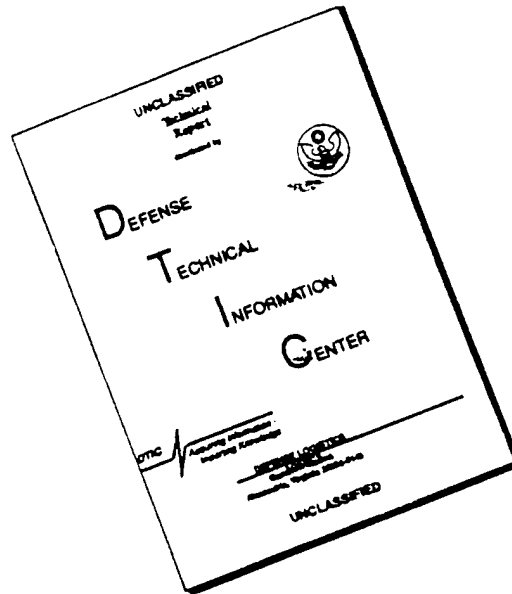
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