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RED FLAGS IN PROSPECTIVE CONTRACTOR'S
FINANCIAL STATEMENT

by

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This thesis attempts to identify warning signals in the contractors' financial statement, or "red flags", which may be used to identify those prospective contractors who are likely to become deliquent in the performance of their contracts. A "red flags" list compiled from the current literature was sent to financial analysts in the thirty-eight Financial Service Branches, Defense Contract Management Command Area Offices(FSDCMAOs) to determine the "red flags" most widely used. Additional issues are examined. The first is whether geographical location and length of field experience of the reviewing analyst might influence the choice of "red flags". Secondly, are different approaches used in conducting financial statement analysis of a manufacturer versus a vendor?

The study identifies ten "red flags" used by more than half of the responding analysts and there appears to be no difference in "red flags" used based on geographical location of the analysts or as a consequence of their length of field experience.

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in
Prospective Contractors' Financial Statements

by

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ABSTRACT

This thesis attempts to identify warning signal in the contractors' financial statement, or "red flags", which may be used to identify those prospective contractors who are likely to become delinquent in the performance of their contracts. A "red flags" compiled from the current literature was sent to financial analysts in the thirty-eight Financial Service Branches, Defense Contract Management Command Area Offices(FSDCMAOs) to determine the "red flags" most widely used. Additional issues are examined. The first is whether geographical location and length of field experience of the reviewing analysts might influence the choice of "red flags". Secondly, are different approaches used in conducting financial statement analysis of a manufacturer versus a vendor?

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I. INTRODUCTION

The United States Government spends billions of dollars each year on contracts for the procurement of supplies, services and construction. Unfortunately, the Government terminates many of these contracts due to a contractor's failure to perform or to meet specifications. Terminated contracts incur a cost to the Government both in resources expended to terminate the contract and in the lack of receipt of the required goods or services--costs that can be ill afforded in a period of tightening budgets. To reduce the probability of awarding contracts to a firm that may not perform or that may go bankrupt during execution of the contract, the Government requires an assessment of prospective contractors--the Preaward Survey (PAS).

A. THE PREAWARD SURVEY (PAS)

The PAS is an evaluation by a Contract Administration Office of a prospective contractor's capability of performing under the terms of a proposed contract. It covers those aspects of the contractor's *management*, *finances*, and *facility resources* that are significant to the purchasing office in determining whether a contractor would be considered responsible.

Generally, the purchasing office will request a preaward survey of the details commensurate with the dollar value and complexity of the proposed procurement. Seven working days are allowed after receipt of the request for conducting the survey and submitting the report.

B. OBJECTIVES OF RESEARCH

This thesis reviews the "red flags" listed in financial literature that are available to assess the health of prospective government contractors before contract award. Additionally, based on the author's independent research, this study provides additional key indicators of potential contractor delinquency. The thesis primarily focuses on what indicators are used by analysts to assess the prospective contractor's financial statements. Assessment of the financial statements can also aid in evaluating prospective contractors' management and technical capabilities. Specifically, the primary research question is this:

1) What red flags in the prospective contractor's financial statements could be used as an indicator of financial health?

Secondary research questions include the following:

1) What red flags in financial statements are suggested from the financial literature?

2) What red flags do field price analysts, who conduct financial analysis in the office, use as health indicators?

3) Are different approaches used when conducting financial statement analysis of a manufacturer versus of a vendor/distributor?

4) Does geographical location influence the choice of red flags?

5) Does the amount of field experience the analyst has influence the choice of red flags?

C. METHODOLOGY OF THE STUDY

This thesis first reviews the current regulations pertaining to the preaward survey; second, it reviews the red flags described in financial literature; third, it describes how those red flags were compiled into a 33-item list and were sent to financial analysts in field offices; and finally, it presents and analyses the analysts' responses and identifies the red flags most frequently used by financial analysts in field offices.

D. ORGANIZATION OF THE STUDY

1. Chapter I: Introduction

This chapter will set the scene and identify the questions addressed in the thesis.

2. **Chapter II: Background and Regulations Pertaining to the Preaward Survey (PAS)**

The current regulations and method of PAS financial analysis will be presented in this chapter.

3. **Chapter III: Literature Review and Theoretical Framework of Red Flags**

The theoretical basis of red flags will be described in this chapter. The explanation and justifications for using red flags in prospective contractors' financial statements as health indicators will be discussed here.

4. **Chapter IV: Presentation of Data Collected**

A detailed representation of all numerical data and its statistical analysis will be presented in this chapter. Significant areas of legality or unusual findings will also be presented here.

5. **Chapter V: Conclusions and Recommendations**

Finally, this chapter ties all the findings together and answers the research questions. Specific recommendations will be outlined, based on the findings of this study, to facilitate the preaward financial assessment process.

II. BACKGROUND AND CURRENT REQUIREMENTS

A. BACKGROUND

If a contractor fails to perform or to meet specifications, the contract may be subject to termination by the Government. Depending on the exact nature of the delinquency, the Government may terminate for either default or convenience. Either way, terminated contracts incur a cost to the Government both in resources expended to terminate the contract and in the non-delivery of the required goods or services. Such costs are ill afforded in a period of tightening budgets. To reduce the probability of awarding contracts to firms that may not perform or that may go bankrupt during execution of the contract, the Government Contracting Officer is required to assess the capability of prospective contractors, including their financial capability.

A review of financial statements and credit ratings can reveal whether a supplier may be incapable of performing satisfactorily. A healthy financial position permits a contractor to acquire the labor, technology, or capital equipment required for performance of a contract. Financial stability is also essential for suppliers to assure continuity of supply and reliability of product quality. It provides a cushion so that the supplier can withstand difficulties during

the performance of the contract and still can deliver the product. Problems could develop in getting a financially weak supplier to maintain quality, a supplier who does not have sufficient working capital to settle an expensive claim, or a financially unsound supplier to work overtime to meet a promised delivery date.

A weak financial position may also result in a contractor's financial failure, leaving the contractor unable to fulfill the requirements of the contract. Thus, there is a need to determine how well the contractor may be expected to perform on the contract and if the potential contractor can stay in business long enough to complete it.

B. CURRENT REQUIREMENTS

Federal authorities recognize the need to assess a prospective contractor's health before contract award and therefore have established regulations and guidelines for contracting officers.

Before award for either a sealed bid or a negotiated contract, the Federal Acquisition Regulations (FAR) requires that a "responsibility" determination be made of the successful bidder or tenderer [Ref. 1]. The FAR Section 9.104 sets the general standards of responsibility as follows.

To be determined responsible, a prospective contractor must satisfy the following seven criteria:

1. Adequate Financial Resources

Have adequate financial resources to perform the contract, or the ability to obtain them.

2. Ability to Meet Delivery Schedule

Be able to comply with the required or proposed delivery schedule, considering all existing commercial and governmental business commitments.

3. Satisfactory Record of Performance

Have a satisfactory record of performance on previous contracts.

4. Satisfactory Record of Integrity

Have a satisfactory record of integrity and business ethics.

5. Necessary Organization

Have the necessary organization, experience, accounting and operational controls, and technical skills, or the ability to obtain them.

6. Necessary Facilities

Have the necessary production, construction, and technical equipment and facilities, or the ability to obtain them.

7. Qualified to Receive Award

Be otherwise qualified and eligible to receive an award under applicable laws and regulations.

The FAR requires the Contracting Officer to make an affirmative finding of responsibility of carrying out future contracts and not merely a finding of nonresponsibility [Ref. 1].

C. PREAWARD SURVEY

To obtain the information necessary to learn a prospective contractor's health, the Contracting Officer conducts a preaward survey consisting of an analysis of pertinent financial, technical, and management reviews. This thesis focuses on the financial review component of the preaward survey only.

1. Financial Analysis

Financial analysis is the assessment of a contractor's financial capability to fulfill contractual requirements carried out by a government price/cost analyst. It is similar, but not identical, to an analysis carried out by a potential investor in the firm.

2. Investor Versus Customer/Creditor Relationship

In business, the term *financial analysis* means "securities analysis" and refers to the study of investment opportunities. Techniques used in the government analysis of corporate financial capabilities are the same as those used in securities analysis; however, their purpose and emphasis differ. The government must determine whether a potential contractor has the financial resources to fulfill contractual

requirements, while the investing community is interested in accurate estimates of future earnings. That is, the Government's interests concern the firm's ability to stay in business and successfully complete a contract. On the other hand, the business community wants not only to know if the firm will stay in business, but also to know how profitably the company will complete the contract or gain other contracts.

The government assesses the data from the perspective of a customer or creditor rather than that of an investor.

3. Analysis of Preaward Survey Requirements

The current requirement consists of gathering necessary information to complete the three pages of Standard Form 1407 (SF 1407)--Preaward Survey of Prospective Contractor--Financial Capability.

SF 1407 is divided into seven sections. The following table(TABLE 1) highlights the noteworthy areas the form assesses.

TABLE 1: AREAS ASSESSED IN FORM SF 1407

"Preaward Survey of Prospective Contractor's Financial Capabilities"

ITEM	COMMENTS
Section I--Recommendation Recommendation of: . Complete award . Partial award . No award	The main body of the section is narrative. The form directs that those sections of the report that substantiate the recommendation be cited, and any other backup information should be included in this narrative.
Section II--General 1. Type of Company 2. Year Established 3. Parent and Subsidiaries	1. Need type to conduct appropriate analysis of S/E 2. If newly organized, may require special attention. 3. Possible breakdown of consolidated statements required.

Section III--Balance Sheet/Profit and Loss Statement Part A--Latest Balance Sheet Financial Position: Working Capital: Ratios: Current assets to current liabilities: Acid Test: Total liabilities to net worth: Part B--Latest Profit and Loss Statement Net Sales: Net Profit Before Taxes Part C--Other Financial Statements Certified:	Current financial position only. Used to determine excess cash available Note only solvency & liquidity ratios assessed. Covers latest period only. Covers three periods to allow trend assessment Date and by whom
Section IV--Prospective Contractor's Financial Arrangements	How does contractor intend to finance, and does analysis of financial position support contractor's proposed method?
Section V--Government Financial Aid	What financial assistance is required or is currently being received from the Government?

Section VI--Business and Financial Reputation	
Bank:	Past performance, total line of credit available, terms & conditions of current loans.
Trade Creditors:	
Commercial Financial Services and Credit Organizations:	Dun & Bradstreet, Standard & Poor's
Credit Rating:	
Price:	
Outstanding Lines or Judgments:	
Section VII--Sales for Next Six Quarters Current Contract Sales Government Commercial Anticipated Contract Sales Government Commercial	Current and projected sales volume

4. Proposed Guidance in Financial Assessments

Due to problems with financial assessments and the completion of the SF 1407 form, DCMC drafted a "Guide to Analysis of Financial Capabilities for Preaward and Postaward Surveys" [Ref. 2]. This guide advises the analyst what to look for when conducting a financial assessment and how to complete the SF 1407 form. It advises what should be included in the form and describes how the information should be obtained. In particular it addresses the following:

a. Section I--Recommendation

The guide advises that the award recommendation should be based on the financial condition, liquidity, and working capital of the company, and that the following should also be included in the narrative section:

- comparing required working capital estimation with firm's current working capital
- comparing current ratio, quick ratio with industry mean to give indication of adequate/inadequate financial position
- comparing debt ratio with industry mean to determine level of debt
- profitability and sales ratio trends

(1) Financial Data Required. The following items are included in the guide's recommendations of what should be obtained from the contractor:

1. Balance sheet and operating statements for the current period, and first and second prior fiscal years.
2. Cash flow statement.

3. Latest annual report. Compare cover letters with previous years to see if the company's performance met their initial expectations; for example, whether the earnings' growth has met the CEO's goals and whether planned acquisition/expansion projects have materialized.

(2) Unqualified approval by a CPA. Thoroughly review any exception to unqualified approval. The guide advises that footnotes be read, including comments explaining certain accounting procedures used and background information deemed necessary to evaluate the statements. Note the following:

- Information concerning profits
- Nonrecurring gains, such as sale of subsidiary
- Changes in accounting practice
- Potential lawsuits/liabilities

(3) In-depth Systematic Statement Analysis. The guide suggests that a systematic and orderly approach be used to analyze financial data.

(4) Consolidated Financial Statements. Consolidated statements may be more meaningful than separate statements when one of the companies in the group directly or indirectly has a controlling financial interest in the other companies. However, if the prospective contractor is a subsidiary, then a breakdown of financial statements into the individual subsidiaries is required. As within the corporate structure, one or more of the subsidiaries and possibly the

holding company may be weak, while the offeror, one of the subsidiaries, may be strong.

(5) Ratio Analysis. The guide addresses the use of ratios in financial analysis, stressing that their meaningful use requires a logical relationship between the figures and that users clearly understand the relationship. It also recognizes that, in statement analysis, any single ratio has little meaning unless related to the circumstances reflected by other ratios, Further, the guide introduces the concepts of horizontal and vertical analysis. It addresses the standards of comparison, past performance, similar or competing firms, and the average performance of firms in the industry. It lists many ratios in an annex and then states, "You should determine which ratios to use in your industry."

(6) Analysis of Trends. The guide recommends that trends be analyzed to determine the direction in which a potential contractor is going and suggests an analysis plan covering earnings, assets, and liabilities. It recommends analyzing the changes in the balance sheet and operating statements to determine if they have strengthened or weakened the company's general financial position.

D. ASSESSMENT OF CURRENT METHOD

An analyst's assessment of a firm's financial capability to fulfill contractual requirements is a judgment call. To minimize potential losses to the Government, it is important

that the analysis be as thorough and effective as possible to ensure that the true financial state of a prospective contractor is revealed.

The following comments provide a brief critique of the current method of assessing a firm's financial capabilities.

1. Form SF 1407

The current report and recommendation, Form SF 1407, fails to address many financial analysis areas that could provide important additional information to the preaward review. Although it addresses the key areas of determining a firm's financial strength, i.e., profit record, net worth, sales and its projected sales volume, the survey form is considered deficient in the following areas:

a. Ratios

Three ratios only are addressed, and they are all current solvency and liquidity ratios. Although a current indication of a firm's abilities to meet its debts and to raise cash are important, an indication of the longer-term well-being of the company would appear advisable.

b. Trends

Trend analysis is required for sales and net profits only, and in absolute and not relative terms. Analysis of the trends in other aspects of the company's finances could be important.

c. Indicators

The form indirectly focuses the analysis on some indicators of possible financial problems (red flags); for example, year of establishment, and financial statements certified by a CPA. However, the form fails to ensure that the analyst systematically looks for these red flags.

d. Narrative

For a form designed to support an affirmative statement of a firm's position, the narrative section and its accompanying instructions appear inadequate to ensure that a comprehensive financial survey has been conducted. It fails to direct the analyst to indicate the extent of the survey; that is, what documents were inspected and what analysis was carried out.

DCMC recognized many of these deficiencies in the form and drafted the guide as a means to direct the analyst more fully to assess current subject areas and to investigate areas not covered by the form.

2. Financial Analysis Guide

The guide provides more comprehensive direction to the analyst in the conduct of the financial review and the completion of the form. However, it is rather vague when it refers to the specifics of how to conduct the analysis using ratios and how to identify potential problem areas.

a. *Ratio Analysis*

The guide lists and explains many financial ratios. However, it fails to direct the analyst what and how to use these ratios in analyzing the firm's financial performance.

b. *Red Flags*

Besides recommending that a systematic and orderly approach be used to analyze financial data, the guide fails to advise the analyst on key areas to address, what order to address them in, and what red flags to look for.

In summary, the current review aspects of the preaward survey have not proved adequate in ensuring the comprehensive and valid financial assessment of prospective contractors. The guidance for analysts drafted by DCMC should assist in overcoming this problem. However, in the area of red flag detection, the current method is still considered deficient. This thesis will further investigate this area.

III. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This section collects theoretical red flags listed in the available financial literature and discuss why and what among those listed are key indicators in determining potential contract delinquencies.

A. WHY USE RED FLAGS?

1. Human Brain Constraints

The finite capacity of the human brain is well documented in the psychological literal but not in the context of accounting or financial decision making. An example of adaptation to the overload phenomenon is the design of an automobile instrument panel, in which typically one measurement--miles per hour--is given prominence. A few other gauges--for example, fuel, alternator, oil pressure, and temperature--are common (though the last three are often replaced by lights due to their low probability of failure--a form of "management by exception"). In deference to the differential capacities and priorities of individuals, still other measuring devices (e.g., clock, odometer, compass, fuel efficiency computer, etc.) may be added.

2. The Overloading of Information

In financial analysis, the typical annual report alone probably contains 50 or more line items within the 3 basic

financial statements for each of 2 or more years, plus footnotes and unaudited information. And even this is but "raw data," which also must be normalized in some manner to make comparisons across time or across entities. Financial analysis textbooks list innumerable ratios that can be computed. As an extreme, a 1980 analysis from the Standard & Poor's Computstat Services contained 184 numbers--for each of 10 years!

It would be pleasant indeed if a contracting officer could, by glancing at only few gauges (red flags), obtain a better estimate of an offeror's performance and health and support his or her determination of the scope and depth of financial analysis.

3. Determination of Scope and Depth of Further Analysis

As mentioned earlier, only seven working days are allowed for conducting the survey and submitting the report after the receipt of the PAS request. Also financial analysis in only 1 out of 67 functions of the Contracting Administration Office (CAO)[1]. So, the significance of using red flags to an overloaded contracting officer's determination of scope & depth of financial analysis is twofold. First, it is time saving--just like the few gauges to a driver's decision of being on the road or not without the overall checks. Second, it may indicate quality of earnings in a

[1] FAR 42.3 lists 67 functions of CAO.

company's fortunes, which may or may not yet be apparent from the key financial measures of financial conditions. Underlying this use of the quality of earnings concept is the belief that managers generally prefer to use conservative accounting, rely on regular operations to generate profits, and use outside debt financing prudently. As a management moves away from this ideal, it creates deviations that identify potential problems (not necessarily a declining or undesirable situation) and considerations in the determination of the scope and depth of further analysis.

B. RED FLAGS IN THE BALANCE SHEET

The balance sheet purports to present data related to a company's financial condition as of a specific time, based on the conventions and generally accepted principles of accounting.

1. Red Flags in Assets

a. *Current Assets*

(1) Low Cash and Marketable Securities Balances at Year End. The company may be using its cash to reduce payable so as to improve its current ratio on a one-shot basis.

(2) Accounts Receivable. Aging of accounts receivable more than credit term indicates possible poor health. Aging of accounts receivable is very desirable for determining slowness in collecting from customers. For example, when the credit terms are net 30 days, any accounts

older than 30 days would indicate a slowness in collecting from customers. A key indicator of a company's health is the timely collection of receivables [Ref. 2:p. 3].

(3) Extension of Trade Payable Indicates Possible Problems. Extension of trade payable that is out of line with past experience or longer than normal trade credit period indicates possible problems. Companies at balance sheet dates like to have their trade payable appear current [Ref. 3:p. 212].

(4) An Increase of Accounts Receivable Out of Line. An increase of accounts receivable that is out of line with the past experience needs analyst's attention. The company may be using credit to credit sales in order to reach an earning objective. These sales may be to higher risk customers, pulled into the current year from the next year or creating financial problems for the seller [Ref. 3:p. 212].

b. Restricted Cash (Escrow Account)

Restricted cash (escrow account) included with cash as one figure on the balance sheet is inappropriate.

c. Inventory

There are five indicators of health in this item.

(1) Slowdown of Inventory Turnover Rate. Sales, inventory, or production problems may be developing if there is a slowdown of inventory turnover rate.

(2) An Increase in the Finished Goods Percentage. An increase in the finished goods percentage might indicate poor sales forecasting, a slowdown in customer order or a failure to react promptly to a downturn in business. The higher finished foods might also result from a change in manufacturing policy to reduce production costs by lengthening production runs, which then requires holding product in inventory in anticipation of future orders. Such a strategy may increase the company's capital needs and level of risk and should be closely monitored by statement analysts.

(3) High Inventory Turnover Ratio. It is difficult to determine what the appropriate turnover ratio and distribution of inventory between raw materials, work in progress, and finished goods should be for a company. In general, a high turnover ratio is preferable to a low one, but if the turnover rate is too high, the company may be subject to stockouts or incur excessive production costs due to short production runs.

(4) Reducing Inventory with Premature Shipment. Companies with inventory problems sometimes attempt to hide their difficulties by shipping product to customers prematurely or extending generous credit terms to customers accepting early delivery. Accelerating sales may result in a book entry reducing inventory , but the so-called product sales should be regarded as the equivalent of moving inventory

from the vendor's plant to the customer's plants. The vendor still has an inventory payment date. Statement users can detect this practice, *which usually occurs near the end of the accounting period, by an unusual buildup of receivables.*

(5) Poor Inventory Indicates Poor Management. Companies that manage inventories well usually do well in other aspects of management. The converse is true for companies that have poor inventory management. Actions that lead to efficient inventory management include: *short manufacturing cycles, integration of vendor and customer production plans, optimum inventory lot size scheduling, receipt of vendor shipments as close to use as possible, favorable vendor payment terms, infrequent stockouts, and reliable sales forecasts.*

d. Other Assets

Whether the amount shown is at actual cost or includes profit. [Ref. 2:p. 18]

e. Noncurrent Assets

Noncurrent assets are items a business cannot easily turn into cash and are not consumed within business cycle activity. Current assets can be converted into cash within one year. Noncurrent assets have a life exceeding one year.

(1) Fixed Assets. It is difficult to establish absolute standards to evaluate the results of fixed asset studies [Ref. 3, p 513]. It needs judgement based on the relative results of fixed asset studies of companies in the same industry, historical trend, and contractors' business strategy (role of fixed assets in that strategy).

(a) A Switch in Depreciation Method. A switch in depreciation method from accelerated to straight-line usually indicates that a company has trouble maintaining its earnings at a level high enough to support its former conservative approach to depreciation accounting.

(b) Use of Unrealistically Long Depreciation Lives. Another red flag indicating earnings problems and low-quality earning is the use of unrealistically long depreciation lives.

(2) Declining Depreciation to Sales Ratio Indicates Uncompetitive Technical Capability. A depreciation red flag that can appear in profit analysis is a declining **depreciation to sales ratio**. This may indicate management is "milking" the company by not reinvesting in new assets and thereby not maintaining the operating quality of its plants and equipment.

(a) Unmatchable Depreciable Asset-Related Expense Maintenance. Unmatchable depreciable asset-related expense maintenance indicates profitability and potential operating difficulties. The depreciable asset-related expense

maintenance should be tracked relative to sales or total product costs (cost of good sold plus change in inventory). Management may attempt to push profits up by cutting back on maintenance. This is another red flag indicating profitability problems and, if continued, can lead to operating difficulties.

f. An Unusual Increase in Intangible Asset Balances

An unusual increase in intangible asset balances signals that the company may be capitalizing expenditures of the current period because income is insufficient to absorb the expenditures as expenses of the current period.

2. Red Flags in Liability

Red flags in liability are mostly found in current liability and accumulated provision.

a. Current Liability

(1) Notes Payable to Bank

(a) A Line of Credit Indicates Good Risk. A line of credit is a limit up to which the company can borrow. Some companies have a line of credit as a bank customer, which is a sign that the company is regarded as good risk. This line is used by companies frequently during peak selling seasons.

(b) Borrowing without Collateral Is a Favorable Sign. If a business has borrowed from a bank without collateral, the bank loan would be considered

unsecured (no collateral pledged), which is a favorable sign. It shows the business has an alternative credit source available other than suppliers, and the business meets the strict requirements of a bank.

(c) Unusual Outstanding Notes Indicates Weak Credit Standing. If a company shows outstanding notes and it is not in an industry that traditionally deals in them, this may indicate a weak credit standing [Ref. 2:p. 23].

(2) Accounts Payable Accounts payable represent merchandise or material requirements purchased on credit terms and not paid.

(a) Sizable Accounts Payable. Sizable accounts payable indicate either special credit terms being extended by the suppliers or poor timing of purchases. Companies able to obtain bank loans frequently show small accounts payable relative to all of their current liabilities. The loans are often used to cover material and merchandise obligations. Sizable payable shown, when there are loans outstanding, may indicate special credit terms being extended by suppliers or poor timing of purchases. Accounts payable should include only those accounts arising out of merchandise transactions on open account terms.

(b) Shorter Term of Accounts Payable. Shorter term of accounts payable indicates poor credit regarded by the suppliers.[2]

(c) Increase in Borrowing. Increase in borrowing indicates financing activities from internally generated funds.

(d) Increase in the Deferred Tax Portion of the Tax Expense. The company may be making its accounting for public purposes more liberal, or the pre-tax profit for tax purposes may be falling.

(e) Accrued Liabilities A frequently occurred red flag in this area is no record of accrued liability. Profit claimed but balance sheet not showing a liability for taxes indicates potentially understating the current debt.

Reserve for Taxes, Federal taxes should always be listed as a current liability. In addition, a breakdown should be made available as to what part of the reserve for taxes applies to the income taxes accrued on the earning for the year just completed, and what part of the reserve presents assessments or reserves for prior years' taxes. If a balance sheet does not show a liability for taxes and a profit is claimed, the company may be understating its current debt.

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[2] This is an empirical rule of Mr. Gary Thomas, Head of Administration Office, DCMAO,Los Angeles.

b. Accumulated Provisions

Accumulated provisions are estimates of future expenditures, asset impairments, or liabilities that have been accrued by a charge to income. Typical examples of accumulated provisions are contingencies for future losses.

(1) Reduction of Reserves by Direct Charges or Reversals The direct charges suggest that the contingency for which the reserve was created occurred or the company needs to reverse the reserve to create profits [Ref. 3:p. 212].

(2) Unrealistic Estimation of Liability Obligations This area needs attention because the criteria for liability recognition is <u>not</u> straightforward and is subject to ambiguous interpretation of "time" and "amount." Those obligations can be classified as follows:

1. Fixed Payment Dates And Amount
2. Fixed Payment Amounts but Estimated Payment Dates
3. Both Timing and Amount Of Payment Must Be Estimated
4. Advances From Customers on Unexecuted Contracts and Agreements
5. Contingent Obligation

3. Red Flag in Owner's Equity

Typical red flag appears in this area is higher book value of owner's equity. Higher book value of owner's equity indicates more liberal accounting practice. Two companies identical in all respects except for their accounting policies

could show in their balance sheets very different values for their owner's equity. The company ith the more conservative accounting practices would report the **lower** book value for owner's equity, yet the market value of the two would be the same.

C. RED FLAGS IN THE INCOME STATEMENT

1. Red Flags for the Managers to Overstate the Income

a. Premature Income Recognition

Income is recognized before the earning process is completed. Provisions must be made for some future costs or revenue adjustment, to reflect the nature of the earnings process yet to be completed. These costs (such as warranty expense) and revenue adjustments (such as provisions for returns and allowances) are based on management estimates.

b. Unreasonable Revenue-Related Expenses Estimates

The revenue-related expenses (that is, warranty expense and provision for returns and allowances) based on management estimates are unreasonable, comparing the manager's estimate with the past and industry.

2. Red Flags for the Manager to Pump Revenues Up

There are three red flags that indicate the manager might take in the short run to pump revenues up to hide a deteriorating situation.

a. Changes In The Inventory And Accounts Receivable Levels Relative To Sales

Managers may accelerate work on contracts accounted for by

- using the percentage-of-completion method
- advancing the shipping date of goods not originally due to be received by the customer until a later period in return for not requiring payment until after the original payment date
- overloading the channels of distribution
- guaranteeing customer financing so that customers can place an order they normally might defer because of funding problems
- swapping sales with firms in similar difficulties

Normally, these actions are hard to detect. The best indicator of these dubious sales-boosting maneuvers is unusual changes in the inventory and accounts receivable levels relative to sales.

b. Inappropriate Account of Progress Payment

Analysts focusing on revenues should always look at the liability side of the balance sheet. That is where deferred revenues and income are presented. This is an important source of revenue information because under some circumstances the recognition of income may be deferred to the

future, even though the company has already received cash or a note from the transaction [Ref. 2:p. 38].

c. Reductions of Managed Costs

The analyst need to pay attention to see if there is a reduction of management costs, such as advertising. These costs are often reduced to help a company reach its profit goal. When this occurs, a question should be raised as to whether or not the long-term interests of the company are being endangered.

3. Red Flags in Financial Characteristics

Financial characteristics, such as financial leverage, liquidity position, and availability of financing, also affect the quality of earnings rating.

a. Financial Leverage Increase Is Unfavorable

As financial leverage increases, it may become increasingly more difficult to obtain additional debt financing and when accomplished, it may be at a higher interest rate than the present debt. As the fixed interest expense increases, earnings have a tendency to be more volatile and, hence, of a lower quality.

b. Liquidity Is a Key Factor

Funds must be available for future growth, and the source of these funds bears directly on earnings quality. If a company is unable to finance its growth at reasonable and

affordable costs, it may not be able to maintain its growth rate, and its earnings stability may be jeopardized.

Liquidity is a key factor in assessing a company's ability to meet its current obligations. Although liquidity may not bear directly on current reported earnings, a company that cannot meet its financial obligations will likely to resort to actions that will result in a greater level of uncertainty and risk being attached to the future earnings.

c. High Percentage of Interest Income

High percentage of interest income is unfavorable. Earnings of nonfinancial institutions that include a high percentage of interest income are also considered to be of low quality.

d. Decline in Gross Margin Percentages

Decline in gross margin percentages needs attention. Price competition may be hurting the company, its costs may be out of control, or the company's product mix may be changing.

D. RED FLAGS IN OTHER CONSIDERATIONS

1. Notes to Financial Statement

a. Increase in the Unfunded Pension Liability

This can also be found on the face of the balance sheet. The funding of pension may be becoming more difficult, which suggests a cash flow problem.

b. *Inventory Notes and Supplemental Inflation Disclosures*

Inventory notes and supplemental inflation disclosures are helpful in trying to reconcile the effect of the LIFO-FIFO choice on income and inventory values when examining a single company or comparing many companies [Ref. 3:p. 660].

2. Auditor's Report

a. *An Unusual Audit Report*

An unusual audit report is one that is long, contains unusual wording, is dated later than customary, or indicates a change in auditors. These red flags may indicate that management and their public accountants disagree over how certain transactions should be accounted for. Typically, this disagreement is over transactions that involve a high degree of uncertainty.

b. *Other Considerations in Using Auditor's Report*

Auditors are often present when year-end inventory is counted, but they do not always participate in counting all of the inventory. Also, they rely heavily on management representations that the inventory is salable. Under these conditions, a combination of an inept audit and a dishonest management can easily result in nonexistent, obsolete, damaged, and nonsalable inventory being recorded as good inventory and cost of goods sold being understated. It is

almost impossible for the statement user to detect this type of fraud directly [Ref. 3:p. 661].

3. Accounting Change

An accounting change signals changes in accounting policies, accounting estimates, or the application of existing accounting policies toward a more liberal application. The accounting change may signal a change in the economics of the firm or may simply be a change to create a higher earnings growth rate.

E. RED FLAG LIST

From the previous discussion of the various considerations of red flags. A list of 33 red flags has been compiled, as follows:

RED FLAGS

1. Low cash and marketable securities balances at year-end indicate that the company may be using its cash to reduce payable so as to improve its current ratio on a one-shot basis.

2. Aging of accounts receivable more than credit term indicates possible poor health.

3. Extension of trade payable indicates possible problems.

4. An unusual increase of accounts receivable out of line shows potential short-term revenue driving.

5. Restricted cash (escrow account) included with cash as one figure on the balance sheet.

6. Slowdown of inventory turnover rate indicates sale, inventory or production problems may be developing.

7. An increase in the finished goods percentage indicates poor sale forecasting, a slowdown in customer order or a failure to react promptly to a downturn in business.

8. High inventory turnover ratio indicates the company may be subject to stockouts or incurring excessive production costs due to short production runs.

9. Poor inventory (longer manufacturing cycles, longer period of receipt of vendor shipments, poor sale forecast, etc.) indicates poor management.

10. The amount shown in current assets includes profit not earned which indicates liberal accounting practice.

11. A switch in depreciation method from accelerated to straight-line indicates that a company has trouble in maintaining earnings to support its former conservative approach to depreciation accounting.

12. Use of unrealistically long depreciation lives indicates earning problems.

13. Declining depreciation to sales ratio indicates uncompetitive technical capability.

14. Unmatchable depreciable asset-related expense maintenance indicates profitability and potential operating difficulties.

15. An unusual increase in intangible asset balances signals that the company may be capitalizing expenditures because its income is insufficient to absorb the expenditures as expense of the current period.

16. A company has no line of credit, or borrowing with collateral is considered risky by its bank.

17. Unusual outstanding notes indicates weak credit standing.

18. Shorter term of account payable indicates poor credit regarded by the suppliers.

19. Increased borrowing indicates failure in financing activities from internally generated funds.

20. Increase in the deferred tax portion of the tax expense indicates a falling pre-tax profit.

21. Profit is claimed but the balance sheet does not show a liability for tax indicating a potential understating current debt.

22. Unusual reduction of contingency reserves suggests the company needs to reverse the reserve to create profits.

23. Unrealistic estimation of liability obligations indicates risky accounting practices.

24. Income is recognized before the earnings process is completed indicating the manager may be overstating the income.

25. Revenue-related expense estimates that are unreasonable (compared with the past and the industry) signal an overstated income.

26. Progress payments are reflected as sale instead of a liability indicating the managers are increasing revenue to hide a deteriorating financial situation.

27. A dramatic reduction of managed costs, such as advertising draws attention to the long-term interest of the company.

28. Financial leverage increase is unfavorable.

29. Liquidity is a key factor in assessing the company's ability to meet its current obligation.

30. High percentage of interest income indicates low quality of earnings.

31. A decline in gross margin percentage signals that cost may be out of control.

32. An increase in the unfunded pension liability suggests a cash flow problem.

33. The annual audit report is long, contains unusual wording, is dated later than customary or indicates a change in auditors, may signal potential problems.

IV. PRESENTATION OF DATA

A. SURVEY ANALYSIS

The main purpose of this survey is to find out what red flags are used by field price analysts, who conduct financial analysis in the office, to indicate the contractor's health, or otherwise. A secondary purpose of this survey is to clarify the impact of three assumed parameters that might influence the choice of red flags; that is, the *geographical location* and *length of field experience* of the analyst, and whether the prospective contractor is a *manufacturer or a vendor/distributor*.

1. Survey Recipients

The Financial Service Branch of Defense Contract Management Command Area Office (FSDCMAO) is the cognizant authority in conducting the PAS financial analysis. Questionnaires were sent to all the 38 domestic Financial Service Divisions of DCMAOs (FSDCMAO). (See Appendix A) The chief or acting chief of each FSDCMAO was contacted by phone and agreed to have the financial analysts who actually conduct the preaward financial analysis complete the questionnaire.

The researcher acknowledges the difference between a good and a mediocre analyst and its impact on the choice of red flags. Ideally, the ranking of voted red flags would be

more useful if quality, expertise or caliber of the analyst were identified and weighted. Unfortunately, there is no current recognition of a "good" or "mediocre" analyst, so it was arbitrarily assumed that all analysts are of equal quality.

2. Survey Content

To find the warning signals analysts actually use, the analysts were given the list of 33 red flags, which was compiled from various readings (A sample of the survey is provided in Appendix A). Respondents were asked simply to mark each red flag they considered important. Also, the locations of respondents are classified in five areas (Northeast, Mid-Atlantic, South, North Central, and West) and the length of analysts' field experience were classified into five categories (under two years, 3 to 5 years, 6 to 8 years, 9 to 12 years, and over 12 years) to analyze the influence of both factors (geographical locations and the length of field experience) on the analysts' choice of red flags. Finally, to find the influence of the type of prospective contractor (manufacturer versus vendor/distributor) on the analysts' choice of red flags, the respondents were asked specifically if, in their opinion, the two scenarios required different analyses.

3. Limitations of the Survey

The major limitation of this thesis is that only the most popular red flags are used. All we can say is that some red flags are <u>commonly</u> used. The functional value of using these red flags is not examined. This thesis does not address the question of whether the commonly used red flags have any value in predicting contractor performance. No studies have been identified which assess how effective these red flags are in identifying contractor performance vs. non-performance. The survey seeks only to find which red flags are customarily used, not how effective or functional they are. Also, due to the lack of any current index to recognize good financial analysts, it is impossible to identify good analysts and weight their choices. So the researcher assumes the "equal quality" of all respondents.

For focusing on the "key" red flags, the researcher picked up ten red flags, which were selected by at least half of the respondents, as a basis of comparison. The second assumption is that the votes of all "equal quality" respondents for each red flag represent the importance of each red flag.

4. Survey Responses

Fifty-seven questionnaires from twenty out of the thirty-eight FSDCMAOs were returned. The FSDCMAOs and the geographic and experience summaries of respondents are

presented below. A total, raw-data result is presented in Appendix B.

For getting a better understanding of the factors influencing the choice of red flags, information about where these respondents work and how long they have conducted financial analysis is presented in two tables. Summaries of FSDCMAOs and geographical locations of respondents are listed in TABLE 2. A summary of length of field experience of respondents is listed in TABLE 3, which classifies the analy␣ts into five categories. Finally, TABLE 4 summarizes the number of respondents choosing the top ten red flags.

B. RESULTS OF THE ANALYSIS

1. Influence of Geographical Location

TABLE 5 summarizes the number of respondents from each geographical location choosing the total top ten red flags.

To determine the influence of geographical location, a Chi square test was conducted to test the dependence or independence of overall geographical location to the votes of red flags. (The process of statistics software minitab printout is provided in Appendix C.) The result is to accept the hypothesis that *overall geographical location does not affect the choice of red flags.*

2. Influence of Length of Field Experience

TABLE 6 presents the summary of votes to the top ten red flags from each length of field experience group.

TABLE 2: SUMMARIES OF FSDCMAOS AND THE GEOGRAPHICAL LOCATIONS OF RESPONDENTS

AREAS	TOTAL	NORTH EAST	MID-ATLANTIC	SOUTH	NORTH CTRL.	WEST
NUMBER OF TOTAL FSDCMAOs	38	6	9	6	9	8
NUMBER OF RESPONDING FSDCMAOs	20	4	3	3	6	4
PERCENTAGE OF RESPONDING FSDCMAOs	55	67	33	50	67	50
NUMBER OF RESPON-DENTS	57	6	7	12	20	12

TABLE 3: SUMMARY OF LENGTH OF FIELD EXPERIENCE

LENGTH OF FIELD EXPERIENCE	TOTAL	OVER 12 YRS.	9-12 YRS.	6-8 YRS.	3-5 YRS.	0-2 YRS.
NUMBER OF RESPONDENTS	57	11	7	14	19	6

TABLE 4: NUMBER OF RESPONDENTS CHOOSING THE TOP TEN RED FLAGS

RANKING	1	2	3	4	5	6	7	8	9	10
NUMBER OF RED FLAGS	29	16	6	2	3	26	19	28	24	17
NUMBER OF RESPONDENTS CHOOSING EACH RED FLAG	52	43	39	37	37	36	34	33	31	30
% OF TOTAL RESPONDENTS (VOTES/57)	91	75	68	65	65	63	60	58	54	53

TABLE 5: GEOGRAPHICAL LOCATION INFLUENCE ON THE CHOICE OF RED FLAGS

RANKING	FLAG ID #	TOTAL VOTES	N.E. VOTES	M.A. VOTES	SOUTH VOTES	N.C. VOTES	WEST VOTES
# OF RESPON-DENTS		57	6	7	12	20	12
1	29	52	5	6	12	18	11
2	16	43	3	5	12	16	7
3	6	39	1	5	11	13	9
4	2	37	5	5	11	8	8
5	3	37	1	3	11	14	8
6	26	36	3	3	10	11	9
7	19	34	3	4	11	12	4
8	28	33	0	3	8	15	7
9	24	31	1	2	10	9	9
10	17	30	3	4	10	8	5

N.E. = Northeast; M.A. = Mid-Atlantic; N.C. = North Central

TABLE 6: LENGTH OF FIELD EXPERIENCE INFLUENCE ON THE CHOICE OF RED FLAGS ANALYSIS

RANKING	FLAG ID #	TOTAL VOTES	> 12 YEARS VOTES	9-11 YEARS VOTES	6-8 YEARS VOTES	3-5 YEARS VOTES	0-2 YEARS VOTES
# OF RESPON-DENTS		57	11	7	14	19	6
1	29	52	11	7	13	15	6
2	16	43	9	6	8	14	6
3	6	39	8	5	11	11	4
4	2	37	8	5	10	10	4
5	3	37	9	6	11	4	5
6	26	36	8	6	9	9	4
7	19	34	9	5	7	8	5
8	28	33	8	4	7	10	4
9	24	31	7	6	8	8	2
10	17	30	9	6	4	7	4

To determine the influence of length of field experience to the votes of the total's top ten red flags, a Chi square test was conducted to test the dependence or independence of length of field experience to the votes of red flags. (The process of statistics software minitab printout is provided in Appendix D.) The result is to accept the hypothesis that *length of field experience does not affect the choice of red flags.*

3. Manufacturer Versus Vendor/Distributor Issue

a. Overall Analysts' Opinions

Thirty-six of fifty-seven voted "yes, there is a difference between the conducting analysis on the financial statement of manufacturer and vendor," while seventeen voted "no" and four did not express their opinions. A summary of the votes on this issue is presented in TABLE 7.

b. Analysis by Geographical Location

Interestingly, the summary shows that analysts in the South and the Northeast tended to see a difference in conducting financial analysis of manufacturers versus vendors/distributors (eleven of twelve in the South and five of six in the Northeast). But a Chi square test shows there were no significant differences on both sides of this issue among analysts from the other areas. (See the minitab printout list in Appendix E.) However, a comparison between

each area does show some difference between individual areas. A summary is listed in TABLE 8.

4. Influence of Length of Field Experience

A summary of the preferred red flags for each level of field experience is presented in TABLE 9. This issue is controversial among each group except the 0-2 years group. A chi square test shows no statistical significant difference caused by different length of field experience. (The minitab printout is presented in Appendix F.)

Second, this research indicates that the geographical locations and length of field experience present no significant impact to the choice of red flags. But on the manufacturer versus vendor/distributor issue, 36 analysts (68%) claimed there is a different approach to conducting the financial analysis, while 17 (32%) said there was not. For those who said yes, the main reasons are capital need (Flag 20, 54%) and considering the manufacturer more risky (Flag 10, 27%).

TABLE 7: GEOGRAPHICAL LOCATION INFLUENCE ON THE CHOICE OF RED FLAGS ANALYSIS

(MANUFACTURER VS VENDOR ISSUE)

AREA # OF RESPONDENTS	Total (57)	North East (6)	Mid-Atlantic (7)	South (12)	North Ctrl. (20)	West (12)
NO DIFFERENCE	17	0*	3	1*	7	6
YES, THERE ARE DIFFERENT EMPHASES	36	5*	2	11*	12	6
REASONS: 1. CAPITAL NEED	20	2	1	4	8	3
2. PROGRESS PAYMENT	6	0	1	2	1	2
3. MFR. IS MORE RISKY	10	0	0	6	3	1
VENDOR IS MORE RISKY	1	0	0	1	0	0

*A significant difference exists.

TABLE 8: GEOGRAPHICAL LOCATION INFLUENCE ON THE CHOICE OF RED FLAGS TWO BY TWO ANALYSIS (MANUFACTURER VS VENDOR ISSUE)

	NORTH-EAST	MID-ATLANTIC	SOUTH	NORTH CENTRAL	WEST
NORTH-EAST	XXX	*** (4.286)	SIMILAR	SIMILAR	*** (3.864)
MID-ATLANT.	XXX	XXX	*** (5.236)	SIMILAR	SIMILAR
SOUTH	XXX	XXX	XXX	SIMILAR	*** (5.042)
NORTH CENTRAL	XXX	XXX	XXX	XXX	XXX

XXX = no comparison or redundancy

*** = a difference of statistical significance at .05 level

TABLE 9: LENGTH OF FIELD EXPERIENCE INFLUENCE ON THE CHOICE OF RED FLAGS ANALYSIS

(MANUFACTURER VS VENDOR ISSUE)

	TOTAL (35)	>12 YRS. (11)	9-12 YRS. (7)	6-8 YRS. (14)	3-5 YRS. (19)	0-2 YRS. (6)
NO DIFFERENCE	17	3	2	3	8	1
DIFFERENCE EXISTS	36	7	5	10	10	4
REASONS: CAPITAL NEED	20	6	2	5	5	2
PROGRESS PAYMENT	6	0	2	4	0	0
MANUFACTURER IS MORE RISKY	10	1	2	4	2	1
VENDOR IS MORE RISKY	1	1	0	0	0	0

V. CONCLUSIONS AND RECOMMENDATIONS

A. OBSERVATION

Literature on the issue of warning signals in a company's financial statements to determine the company's financial health suggests no fewer than 33 red flags which can be used. The ten most popular, as determined by over 50 percent of votes from separate DCMAO financial field offices, are presented in TABLE 10.

Among these ten key indicators, information about the liquidity condition of a prospective contractor is currently required in Part A of Section III, SF 1407, as the acid test. However, information concerning the issues addressed by Red Flags ranking 2 through 10 is currently not required. The rationale for the significance of using Red Flags 2 through 10 as indicators in assessing a prospective contractor's risk is given in the previous chapters. However, these ten red flags provide an overall perspective beyond the financial statements to assess prospective contractor's financial health.

B. USE OF RED FLAGS

The individual rationale of each red flag has been demonstrated in previous chapters. However, together, these ten key red flags can provide us an quick overview from four aspects.

TABLE 10: THE TEN MOST COMMONLY USED RED FLAGS

RANKING (%)	RED FLAG #	RED FLAG DESCRIPTION
1 (91%)	29	Liquidity is a key factor in assessing the company's ability to meet its current obligation.
2 (75%)	16	A company has no line of credit, or borrowing with collateral is considered risky by its bank.
3 (68%)	6	Slowdown of inventory turnover rate indicates sale, inventory or production problems may be developing.
4 (65%)	2	Aging of accounts receivable more than credit term indicates possible poor health.
5 (65%)	3	Extension of trade payable indicates possible problems.
6 (63%)	26	Progress payments are reflected as a sale instead of a liability, indicating the managers are increasing revenue to hide a deteriorating financial situation.

RANKING (%)	RED FLAG #	RED FLAG DESCRIPTION
7 (60%)	19	Increased borrowing indicates failure in financing activity from internally generated funds.
8 (58%)	28	Financial leverage increase is unfavorable.
9 (54%)	24	Income is recognized before the earning process is completed indicating the manager may overstating the income.
10 (53%)	17	Unusual outstanding notes indicates weak credit standing.

1. Financing Ability

Red Flags 19 and 28, increased borrowing and financial leverage, indicate a company's failure in financing activity from internally generated funds.

2. Relationships with Banks and Suppliers

Red Flag 16 (line of credit/collateral) presents the relation between the company and banks. Red Flags 17 (unusual outstanding) and 3 (extension of trade payable) present the relation between the company and its suppliers. The rationale is that any bank/supplier assessment of a prospective contractor is significant due to the long-term business relationship. Also the bank/supplier may often have a better understanding of the specific industry in which the prospective contractor is engaged. Finally, the bank/supplier shares the same purpose the Government has: self-protection. Therefore, the contracting officer can take advantage of the ready made assessment of banks to determine the scope and depth of further analysis.

3. Assessment of Risk in Accounting Practices

Red Flags 24 and 26 (premature recognition of income and progress payment) may indicate that the managers are too liberal (versus conservative) in applying accounting procedures and in general business management. The rule of thumb is "the more liberal the accounting practice is, the more risky it is."

4. The Overall Management from the Inventory Management

Red Flag 6 (a slowdown of inventory turnover rate) is a strong warning signal to problems in inventory management and even overall management. If price analysts find this situation in their desktop review, they should notify a cognizant PAS team member to determine follow up investigation.

C. *CONCLUSION*

To reduce the probability of awarding contracts to firms that may not perform or that may go bankrupt during execution of the contract, Government contracting requires various assessments of prospective contractors that include the contractors' financial soundness. To minimize potential losses to the Government, the analysis must be as thorough and effective as possible to ensure revelation of the true financial state of a prospective contractor. Unfortunately, this is not always the case. Quite often, the PAS financial analysis is constrained by the urgency of time. This is why we need a list of key red flags to assist the contracting officer. Red flags help identify when further analysis is required by highlighting those key issues that are not required to be addressed by current regulation, including examining a company's financing soundness and bank/supplier relations and assessing the company's accounting practices and management capability.

The main purpose of this thesis is to find potential warning signals from the prospective contractor's financial statements by using the current practice of field analysts. Due to the assumptions of equal quality of financial analysts and the constraints of the sample number, the characteristic of outcome of these top ten red flags should be interpreted as "popular" rather than "important" or "functionally useful." They must be subjected to validity testing before being formally integrated into the preaward survey evaluation.

D. RECOMMENDATIONS

The following are two recommendations for obtaining a more thorough evaluation of prospective contractors' financial condition:

- A follow-on thesis may be appropriate to determine the validity of the first ten red flags. This could be accomplished by looking at the original submitted financial statements of delinquent contractors to see if these red flags existed at time of award.

- A follow up survey may be appropriate to answer the following questions: first, why did respondents from the South and the Northeast tend to see a difference in conducting financial statement analysis between manufacturer vs. vendor/distributer; and second, how and why does geographical location affect this issue?

APPENDIX A

Dear Sir:

This is a questionnaire for my research on " PROSPECTIVE CONTRACTORS' HEALTH INDICATORS" that I hope to collect both your experience and theories in financial analysis to find out the key indicators in picking up " unhealthy " (In the sense of financial position, management and technical capability) prospective contractors (or offerors) that may be potentially delinquent. The underlying concept of " health indicators" or " red flags" is the belief that symptoms appear, obviously or not so obviously, when health problems exist. For example, high fever may indicate the need for further diagnosis. Expecting that by referencing such a simple checklist of those key indicators, which are derived from theories of financial analysis and experiences of experts like you, a new contracting officer can quickly determine the scope and depth of further financial analysis of an offeror's financial statements , if professional price analysts are not available.

First, please answer the following two questions:

1. Job Title:
2. Office Geographic Location :
   a. DCMD Northeast ____ Mid Atlantic _____
   South ______ North Central ____ West ____
   International ______
   b. CAS Code: ______

Question 3 to Question 6 are optional but would be useful for this study.

3. Name: (optional)
4. Phone: (optional)
5. Fax: (optional)
6. Mailing Address: (optional)

7. How many years have you been conducting financial analysis on prospective contractors ? please check one.

   0 - 2 yrs _______ 6 - 8 yrs ______ over 12 yrs______
   3 - 5 yrs _______ 9 - 12 yrs______

8. Do you think there is a different approach (emphasis) in conducting financial analysis on manufacturers and vendors/distributers ? if yes, please describe your rationale.

   NO ______
   Yes______ , Rationale:

9. What do you think can be used as contractor' s health indicators in assessing the financial, management and technical (production) capabilities ? Please answer on the back. (Note ! please answer

this question **before you going to the next** (assessment of my red flag list) so that you can answer this part without being influenced by the red flag list. (please add paper by yourself if not enough space.)

10. RED FLAG LIST (make sure you have answered Question 9 before reading the red flag list)

The following are some indicators (RED FLAGS) listed in the financial analysis literature. Please put an "x" on the left line if you think any specific red flag is important as a key indicator in assessing the health of manufacturers vs vendors/distributers. You can differentiate those indicators in the category of assessing the manufacturer and vendors/distributers by putting an extra **M** for manufacture or **V**/d for vendors/distributers .

FOR EXAMPLE:

1. If you find the red flag is important in assessing the prospective contractor's health (both manufacturer or vendor) please simply put an "x" on the left line.

LIIUSTRATION 1. :

x Aging of Accounts Receivable More Than Credit Term Indicates Possible poor health.

2. If you find the following red flag has been occurred in your previous financial analysis of **Manufacturer**'s financial reports and you agree that it is an **"important"** indicator of prospective contractor's health, please put an "x" (as important) and mark "M"(as Manufacturer) on the left margin.

ILLUSTRATION 2.:

Agree,

X, M Aging of Accounts Receivable More Than Credit Term Indicates Possible Poor Health

Now, Please start ranking following red flags.

RED FLAGS LIST

_________ 1. Low cash and marketable securities balances at year-end indicate that the company may be using its cash to reduce payables so as to improve its current ratio on a one-shot basis.

_________ 2. Aging of accounts receivable more than credit term indicates possible poor health.

_________ 3. Extension of trade payables indicates possible problems.

_________ 4. An unusual increase of accounts receivable out of line shows potential short-term revenue driving.

_________ 5. Restricted cash (escrow account) included with cash as one figure on the balance sheet.

_________ 6. Slowdown of inventory turnover rate indicates sale, inventory or production problems may be developing.

_________ 7. An increase in the finished goods percentage indicates poor sale forecasting, a slowdown in customer order or a failure to react promptly to a downturn in business.

_________ 8. High inventory turnover ratio indicates the company may be subject to stockouts or incurring excessive production costs due to short production runs.

_________ 9. Poor inventory (longer manufacturing cycles, longer period of receipt of vendor shipments, poor sale forecast, etc.) indicates poor management.

_________ 10. The amount shown in current assets includes profit not earned which indicates liberal accounting practice.

_________ 11. A switch in depreciation method from accelerated to straight-line indicates that a company has trouble in maintaining earnings to support its former conservative approach to depreciation accounting.

_________ 12. Use of unrealistically long depreciation lives indicates earning problems.

_________ 13. Declining depreciation to sales ratio indicates uncompetitive technical capability.

_________ 14. Unmatchable depreciable asset-related expense maintenance indicates profitability and potential operating difficulties.

_________ 15. An unusual increase in intangible asset balances signals that the company may be capitalizing expenditures because its income is insufficient to absorb the expenditures as expense of the current period.

_________ 16. A company has no line of credit, or borrowing with collateral is considered risky by its bank.

_________ 17. Unusual outstanding notes indicates weak credit standing.

_________ 18. Shorter term of account payables indicates poor credit regarded by the suppliers.

________ 19. Increased borrowing indicates failure in financing activities from internally generated funds.

________ 20. Increase in the deferred tax portion of the tax expense indicates a falling pre-tax profit.

________ 21. Profit is claimed but the balance sheet does not show a liability for tax indicateing a potential understating current debt.

________ 22. Unusual reduction of contingency reserves suggests the company needs to reverse the reserve to create profits.

________ 23. Unrealistic estimation of liability obligations indicates risky accounting practices.

________ 24. Income is recognized before the earnings process is completed indicating the manager may be overstating the income.

________ 25. Revenue-related expense estimates are unreasonable(compared with the past and the industry) signal an overstated income.

________ 26. Progress payments are reflected as sale instead of a liability indicateing the managers are increasing revenue to hide a deteriorating financial situation.

________ 27. A dramastic reduction of managed costs, such as advertising draws attention to the long term interest of the company.

________ 28. Financial leverage increase is unfavorable.

________ 29. Liquidity is a key factor in assessing the company's ability to meet its current obligation.

________ 30. High percentage of interest income indicates low quality of earnings.

________ 31. A decline in gross margin percentage signals that cost may be out of control.

________ 32. An increase in the unfunded pension liability suggests a cash flow problem.

________ 33. The annual audit report is long, contains unusual wording, is dated later than customary or indicates a change in auditors, may signal potential problems.

Finally, thanks very much for your assistance in filling out this questionaire. All comments are cordially welcomed. Please return to :

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APPENDIX B

Number of Respondents Choosing Specific Red Flags from the List of 33 Red Flags

Ranking of Popularity	Number of Respondents Choosing Specific Red Flag	Red Flag I.D. Number	Percentage % (Votes #/57)
1	52	29	91
2	43	16	75
3	39	6	68
4	37	2	65
5	37	3	65
6	36	26	63
7	34	19	60
8	33	28	58
9	31	24	54
10	30	17	53
11	28	31	49
12	27	18	47
13	26	10	46
14	26	23	46
15	26	32	46
16	24	15	42
17	24	21	42
18	23	25	40
19	23	33	40
20	23	7	40
21	19	5	33
22	18	9	32
23	15	1	26
24	13	27	23
25	12	4	21

Ranking of Popularity	Number of Respondents Choosing this Red Flag	Red Flag I.D. Number	Percentage % (Votes #/57)
26	11	8	19
27	10	22	18
28	10	30	18
29	8	13	14
30	7	14	12
31	6	11	11
32	6	12	11
33	6	20	11

APPENDIX C

Minitab Printout of Geographical Location Influence on the Choice of Red Flags

List of Abbreviations:
1. N.E. North East
2. M.A. Mid Atlantic
3. N.C. North Central

* Note: ROW number indicates the ranking number of top ten red flags. The number under each area represent the number of respondents from that area choosed that ranking red flag on the left column of this printout.

MTB > PRINT C1-C6

ROW	N.E.	M.A.	SOUTH	N.C.	WEST
1	5	6	12	18	11
2	3	5	12	16	7
3	1	5	11	13	9
4	5	5	11	8	8
5	1	3	11	14	8
6	3	3	10	11	9
7	3	4	11	12	4
8	0	3	8	15	7
9	1	2	10	9	9
10	3	4	10	8	5

```
MTB > INVCDF .95;
SUBC> CHISQUARE DF=36.
    0.9500   50.9985
```

```
MTB > CHISQUARE C2-C6
Expected counts are printed below observed counts

Row           N.E.      M.A.   SOUTH      N.C.      WEST    Total
   1             5         6      12        18        11       52
              3.49      5.59   14.82     17.33     10.76

   2             3         5      12        16         7       43
              2.89      4.62   12.25     14.33      8.90

   3             1         5      11        13         9       39
              2.62      4.19   11.11     13.00      8.07

   4             5         5      11         8         8       37
              2.49      3.98   10.54     12.33      7.66

   5             1         3      11        14         8       37
              2.49      3.98   10.54     12.33      7.66

   6             3         3      10        11         9       36
              2.42      3.87   10.26     12.00      7.45

   7             3         4      11        12         4       34
              2.28      3.66    9.69     11.33      7.04

   8             0         3       8        15         7       33
              2.22      3.55    9.40     11.00      6.83

   9             1         2      10         9         9       31
              2.08      3.33    8.83     10.33      6.42

  10             3         4      10         8         5       30
              2.02      3.23    8.55     10.00      6.21

Total           25        40     106       124        77      372

ChiSq =  0.648 +  0.030 +  0.536 +  0.026 +  0.005 +
         0.004 +  0.031 +  0.005 +  0.194 +  0.406 +
         1.003 +  0.155 +  0.001 +  0.000 +  0.107 +
         2.541 +  0.262 +  0.020 +  1.523 +  0.015 +
         0.889 +  0.241 +  0.020 +  0.225 +  0.015 +
         0.139 +  0.196 +  0.006 +  0.083 +  0.322 +
         0.224 +  0.032 +  0.178 +  0.039 +  1.311 +
         2.218 +  0.085 +  0.209 +  1.455 +  0.004 +
         0.563 +  0.533 +  0.154 +  0.172 +  1.040 +
         0.480 +  0.186 +  0.247 +  0.400 +  0.236 = 19.412
df = 36
19 cells with expected counts less than 5.0
MTB > STOP
```

* Note: Row number indicates the ranking number of red flags.

APPENDIX D

Minitab Printout of Length of Field Experience Influence on the Choice of Red Flags Analysis

ROW	>12 YRS	9-11 YRS	6- 8 YRS	3- 5 YRS	0-2 YRS
1	11	7	13	15	6
2	9	6	8	14	6
3	8	5	11	11	4
4	8	5	10	10	4
5	9	6	11	4	5
6	8	6	9	9	4
7	9	5	7	8	5
8	8	4	7	10	4
9	7	6	8	8	2
10	9	6	4	7	4

```
MTB > INVCDF .95:
    0.9500     1.6449
MTB > INVCDF .95;
SUBC> CHISQUARE DF=36.
    0.9500    50.9985
```

* Note: ROW number indicates the ranking number of top ten red flags. The number under each length of field experience group represent the number of respondents from that group choosed that ranking red flag on the left column of this printout.

```
MTB > CHISQUARE C2-C6

Expected counts are printed below observed counts

 ROW    >12 YRS 9-11 YRS 6- 8 YRS 3- 5 YRS 0-2 YRS    Total
   1        11        7       13       15        6       52
         12.09     7.87    12.37    13.49     6.18

   2         9        6        8       14        6       43
          9.99     6.51    10.23    11.16     5.11

   3         8        5       11       11        4       39
          9.06     5.90     9.28    10.12     4.64

   4         8        5       10       10        4       37
          8.60     5.60     8.80     9.60     4.40

   5         9        6       11        4        5       35
          8.14     5.30     8.32     9.08     4.16

   6         8        6        9        9        4       36
          8.37     5.45     8.56     9.34     4.28

   7         9        5        7        8        5       34
          7.90     5.15     8.09     8.82     4.04

   8         8        4        7       10        4       33
          7.67     4.99     7.85     8.56     3.92

   9         7        6        8        8        2       31
          7.21     4.69     7.37     8.04     3.69

  10         9        6        4        7        4       30
          6.97     4.54     7.14     7.78     3.57

Total       86       56       88       96       44      370

ChiSq =  0.098 +  0.096 +  0.032 +  0.169 +  0.005 +
         0.099 +  0.040 +  0.485 +  0.725 +  0.154 +
         0.125 +  0.138 +  0.321 +  0.077 +  0.088 +
         0.042 +  0.064 +  0.164 +  0.017 +  0.036 +
         0.092 +  0.093 +  0.860 +  2.843 +  0.169 +
         0.016 +  0.056 +  0.022 +  0.012 +  0.018 +
         0.152 +  0.004 +  0.146 +  0.077 +  0.226 +
         0.014 +  0.198 +  0.092 +  0.241 +  0.001 +
         0.006 +  0.365 +  0.053 +  0.000 +  0.772 +
         0.589 +  0.469 +  1.378 +  0.079 +  0.052 = 12.070
df = 36
10 cells with expected counts less than 5.0
MTB > STOP
```

* Note: Row number indicates the ranking number of red flags.

APPENDIX E

Minitab Printout of Geographical Location Influence on the Choice of Red Flags Analysis (Manufacturer vs Venjor Issue)

List of Abbreviations:
1. N.E.   North East
2. M.A.   Mid Atlantic
3. N.C.   North Central

* Note: ROW number "1" indicates the respondents said there is no difference in conducting financial statement of manufacturer vs. vendor while ROW number "2" indicates " Yes, there is difference". The number under each area represent the number of respondents from that area choosed "no difference"(1) or "Yes, there is difference."(2).

```
MTB > print c1-c5

 ROW   N.E.   M.A.  SOUTH   N.C   WEST

   1      0      3      1     7      6
   2      5      2     11    12      6

MTB > chisque c1-c5

Expected counts are printed below observed counts

           N.E.      M.A.     SOUTH       N.C      WEST     Total
    1         0         3         1         7         6        17
           1.60      1.60      3.85      6.09      3.85

    2         5         2        11        12         6        36
           3.40      3.40      8.15     12.91      8.15

Total         5         5        12        19        12        53

ChiSq =   1.604 +   1.216 +   2.109 +   0.135 +   1.202 +
          0.757 +   0.574 +   0.996 +   0.064 +   0.568 = 9.223
df = 4
6 cells with expected counts less than 5.0
```

```
MTB > chisque c1 c2

Expected counts are printed below observed counts

            N.E.     M.A.    Total
    1          0        3        3
            1.50     1.50

    2          5        2        7
            3.50     3.50

Total          5        5       10

ChiSq =  1.500 +  1.500 +
         0.643 +  0.643 = 4.286
df = 1
4 cells with expected counts less than 5.0

MTB > chisque c1 c3

Expected counts are printed below observed counts

            N.E.    SOUTH    Total
    1          0        1        1
            0.29     0.71

    2          5       11       16
            4.71    11.29

Total          5       12       17

ChiSq =  0.294 +  0.123 +
         0.018 +  0.008 = 0.443
df = 1
* WARNING * 2 cells with expected counts less than 1.0
          * Chisquare approximation probably invalid
3 cells with expected counts less than 5.0
```

```
MTB > chisque c1 c4

Expected counts are printed below observed counts

            N.E.       N.C    Total
    1          0         7        7
            1.46      5.54

    2          5        12       17
            3.54     13.46

Total          5        19       24

ChiSq =   1.458 +  0.384 + 0.600 +  0.158 = 2.601
df = 1
2 cells with expected counts less than 5.0

MTB > chisque c1 c5

Expected counts are printed below observed counts

            N.E.      WEST    Total
    1          0         6        6
            1.76      4.24

    2          5         6       11
            3.24      7.76

Total          5        12       17

ChiSq =   1.765 +  0.735 +
          0.963 +  0.401 = 3.864
df = 1
3 cells with expected counts less than 5.0
```

```
MTB > chisque c2 c3

Expected counts are printed below observed counts

            M.A.     SOUTH     Total
    1          3         1         4
            1.18      2.82

    2          2        11        13
            3.82      9.18

Total          5        12        17

ChiSq =   2.826 +  1.178 +
          0.870 +  0.362 = 5.236
df = 1
3 cells with expected counts less than 5.0

MTB > chisque c2 c4

Expected counts are printed below observed counts

            M.A.       N.C     Total
    1          3         7        10
            2.08      7.92

    2          2        12        14
            2.92     11.08

Total          5        19        24

ChiSq =   0.403 +  0.106 +
          0.288 .  0.076 = 0.873
df = 1
2 cells with expected counts less than 5.0

MTB > chisque c2 c5

Expected counts are printed below observed counts

            M.A.      WEST     Total
    1          3         6         9
            2.65      6.35

    2          2         6         8
            2.35      5.65

Total          5        12        17

ChiSq =   0.047 +  0.020 +
          0.053 +  0.022 = 0.142
df = 1
```

```
2 cells with expected counts less than 5.0

MTB > chisque c3 c4

Expected counts are printed below observed counts

              SOUTH       N.C      Total
     1            1         7          8
               3.10      4.90

     2           11        12         23
               8.90     14.10

Total            12        19         31

ChiSq =       1.420 +   0.897 +
              0.494 +   0.312 = 3.122
df = 1
2 cells with expected counts less than 5.0


MTB > chisque c3 c5

Expected counts are printed below observed counts

              SOUTH      WEST      Total
     1            1         6          7
               3.50      3.50

     2           11         6         17
               8.50      8.50

Total            12        12         24

ChiSq =       1.786 +   1.786 +
              0.735 +   0.735 = 5.042
df = 1
2 cells with expected counts less than 5.0
MTB > nooutfile
```

APPENDIX F

Minitab Printout of Length of Field Experience Influence on the Choice of Red Flags Analysis (Manufacturer vs Vendor Issue)

```
MTB > INVCDF .95;
SUBC> CHISQUE DF=4.
    0.9500    9.4877
SUBC> CHISQUE DF=1.
    0.500     3.8415


MTB > CHISQUE C11-C15

Expected counts are printed below observed counts

          >12     9-12     6-8     3-5     0-2    Total
    1       3        2       3       8       1       17
         2.70     4.59    3.51    4.86    1.35

    2       7       15      10      10       4       46
         7.30    12.41    9.49   13.14    3.65

Total       5       18      13      17      10       63

ChiSq =  0.090 +  2.034 +  0.074 +  1.459 +  0.034 +
         0.033 +  0.752 +  0.027 +  0.539 +  0.012 = 5.054
df = 4
6 cells with expected counts less than 5.0
```

* Note: ROW number "1" indicates the respondents said there is no difference in conducting financial statement of manufacturer vs. vendor while ROW number "2" indicates " Yes, there is difference". The number under each length of field experience group represent the number of respondents from that group choosed" no difference"(1) or "Yes, there is difference."(2).

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