2000-06

Financial ratio analysis of audited Federal Financial Statements

Kenney, Shane P.

Monterey, California. Naval Postgraduate School

NAVAL POSTGRADUATE SCHOOL

THESIS

FINANCIAL RATIO ANALYSIS OF AUDITED FEDERAL FINANCIAL STATEMENTS

by

Shane P. Kenney

June 2000

Thesis Advisor: O. Douglas Moses
Associate Advisor Shu S. Liao

Approved for public release; distribution is unlimited.

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE June 2000	3. REPORT TYPE AND DATES COVERED Master's Thesis

4. TITLE AND SUBTITLE : FINANCIAL RATIO ANALYSIS OF AUDITED FEDERAL FINANCIAL STATEMENTS

5. FUNDING NUMBERS

6. AUTHOR(S)
Kenney, Shane P.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
N/A

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(maximum 200 words* In recent years, the U.S. Congress has called upon federal government agencies to produce auditable financial statements which adhere to many of the same accounting standards as private businesses. The purpose of these statements is to fully reveal federal entities' financial position, in the hope of enabling a better understanding of these federal entities, and to assist in resource management. The information contained in these federal financial statements permit the calculation of numerous financial ratios. The objective of this thesis was to examine the ability of a set of federal financial ratios to measure aspects of the financial condition of government agencies. To accomplish this, the thesis relied upon a previously developed financial ratio framework. Financial ratios proposed in the framework were calculated for major government agencies. Statistical tests were used to describe the distribution of each ratio and the relationship between the ratios. Broad conclusions are that numerous financial ratios exist, which do have the ability to distinguish differing aspects of the financial condition of government agencies, but that the conceptual meaning of some proposed federal financial ratios is not yet well understood.

14. SUBJECT TERMS Ratios, Ratio Analysis, Financial Ratio Analysis, Financial Statements, Financial Statement Analysis, Federal Financial Reports, Accountability Reports, Chief Financial Officers Act

15. NUMBER OF PAGES 128

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

NSN 7540-01-280-5500 Standard Form 298 (Rev. 2-89) Prescribed by ANSI Std. 239-18

THIS PAGE IS INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

FINANCIAL RATIO ANALYSIS OF AUDITED FEDERAL FINANCIAL STATEMENTS

Shane P. Kenney
Ensign, United States Navy
B.S., United States Naval Academy, 1999

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 2000

Author: [redacted]
Shane P. Kenney

Approved by: [redacted]
O. Douglas Moses, Thesis Advisor

[redacted]
Shu S. Liao, Associate Advisor

[redacted]
Reuben T. Harris, Chairman
Department of Systems Management

THIS PAGE IS INTENTIONALLY LEFT BLANK

ABSTRACT

In recent years, the U.S. Congress has called upon federal government agencies to produce auditable financial statements which adhere to many of the same accounting standards as private businesses. The purpose of these statements is to fully reveal federal entities' financial position, in the hope of enabling a better understanding of these federal entities, and to assist in resource management. The information contained in these federal financial statements permit the calculation of numerous financial ratios. The objective of this thesis was to examine the ability of a set of federal financial ratios to measure aspects of the financial condition of government agencies. To accomplish this, the thesis relied upon a previously developed financial ratio framework. Financial ratios proposed in the framework were calculated for major government agencies. Statistical tests were used to describe the distribution of each ratio and the relationship between the ratios. Broad conclusions are that numerous financial ratios exist, which do have the ability to distinguish differing aspects of the financial condition of government agencies, but that the conceptual meaning of some proposed federal financial ratios is not yet well understood.

THIS PAGE IS INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

THIS PAGE IS INTENTIONALLY LEFT BLANK

LIST OF FIGURES

THIS PAGE IS INTENTIONALLY LEFT BLANK

LIST OF TABLES

I. INTRODUCTION

A. BACKGROUND

Thomas Jefferson held that all Americans should be able to understand and control the finances of the nation. In fact, the U.S. Constitution mandates that the federal government periodically issue financial reports; stating:

> No money shall be drawn from the Treasury, but in consequence of appropriations made by law; and a regular statement and account of the receipts and expenditures of all public money shall be published from time to time. [Ref. 1:Art. I, Sec. IX]

However, the U.S. Constitution stated that Congress and the executive branch are to determine the content and form of said financial reports.

Throughout one's academic journey into the world of accounting, the relevance and necessity of financial reporting becomes clearly evident. As the result of the formulation of basic financial statements, a given entity can provide useful financial information to the following types of users: investors, creditors, employees, government officials, managers, the general public, analysts, and academics.

In an attempt to ensure the utmost relevance and reliability of these statements, various rules and regulations must be adhered to. The financial information given in these statements are audited to ensure that they meet the standards of said rules and regulations. What results is a comparable and consistent way of monitoring and analyzing a given entity's financial position.

Prior to 1990, the federal government had traditionally prepared financial reports for the use of monitoring and reporting on the nature of federal funding. However, inconsistencies and the overall unreliability of these reports provided the impetus behind the legislation that would force the federal government to adhere to many of the same accounting standards as private businesses.

Following the passage of the Chief Financial Officers Act of 1990, the Government Performance and Results Act of 1993, the Government Management Reform Act of 1994, and the Federal Financial Management Improvement Act of 1996, Congress has called upon the federal government to produce auditable financial statements. These statements are to fully reveal the federal entity's financial position, in the hope of enabling a better understanding of these federal entities, and to assist in resource management.

Since effective analysis depends on the relevance and reliability of the numbers behind the statements, all are audited and subject to oversight. Within the financial accounting realm of the federal government, this oversight takes place in the form of five major bodies: the Department of the Treasury, the Office of Management and Budget (OMB), the General Accounting Office (GAO), the Congressional Budget Office (CBO), and the Financial Accounting Standards Advisory Board (FASAB).

The primary purpose of this thesis is to conduct a descriptive analysis of the financial condition of major federal government agencies and departments. The analysis will rely on information reported in Chief Financial Officer statements.

B. SCOPE AND OBJECTIVE

The following is the scope of work which this thesis will employ:

1. A background review of federal financial reporting.

2. A background review of financial ratio frameworks.
3. A collection of financial statements from the major federal agencies and departments.
4. Construction of a database of all relevant data located in the financial statements.
5. Calculation of financial ratios using a provided financial ratio framework.
6. Analysis of financial ratios and financial ratio framework.

The analysis is not intended to draw conclusions about the specific financial condition of each individual government department or agency. Rather, the intent of the analysis is to explore the ability of financial ratios to reveal differences in financial condition across government entities and to describe the range and nature of those differences.

Specifically, the following primary research question will be addressed: "What are the differences in financial condition of federal government agencies and departments as reported in Chief Financial Officer financial statements? Additionally, there are four secondary research questions:

1. What is the purpose of federal financial reporting?
2. What is the purpose of financial ratio frameworks?
3. What type of information is contained within the financial statements produced by federal agencies and departments?

4. How useful is the implemented financial ratio framework for organizing and analyzing the financial condition for federal government agencies and departments?

C. METHODOLOGY

The methodology for this thesis will consist of three phases. These phases, literary review, data collection, and data analyses, will ensure that the primary and all secondary research questions are satisfied.

The review phase will result in a familiarization with both federal financial reporting processes, and financial ratio frameworks. This phase is primarily the background literary review necessary to compliment the data collection phase.

The data collection phase will secure the data necessary to perform a sufficient analysis. This phase consists of six major steps:

1. Identification of major federal reporting agencies and departments: This data is available within the literature of the Chief Financial Officers Act of 1990.
2. Identification of an appropriate financial ratio framework for analyzing the financial condition of federal agencies and departments: This thesis will apply a framework developed in "Framework for Financial Ratio Analysis of Audited Federal Financial Reports." [Ref. 4]
3. Collection of recent financial statements: This can be completed using on-line sources.
4. Identification of the necessary data items from the reports: This thesis will employ the financial ratio framework for guidance.

5. Data filtering: This will be done to eliminate any unusable data.
6. Computation of financial ratios: This thesis will employ the financial ratio framework for guidance.

The data analyses phase will take the form of three major steps. The first step will be a descriptive analysis and statistical study of the ratios calculated. The goal of this descriptive analysis will be to determine the distribution of each ratio. In addition, this thesis will report each ratio's mean, median, range, and skewness. The second step will be a correlation analysis of the financial ratios. The goal of this correlation analysis will be to determine relationships between the financial ratios. The last step of the analysis will be an interpretation of the findings and a critique of the financial ratio framework.

D. ORGANIZATION

This thesis will be organized into five chapters. Following the introductory information and background contained in Chapter I, Chapter II contains information on the federal government's financial reporting environment. This chapter will review standard setting legislation and oversight bodies, federal financial reports, requirements for audited federal financial reports, objectives of federal financial reporting, and the financial statements used in federal financial reporting.

Chapter III first discusses the objectives and purposes of a framework for financial ratio analysis of audited federal financial reports. The methodology for selecting ratios for a framework is then discussed. Finally, financial ratios for audited federal financial reports are produced and a framework for financial ratio analysis of audited federal financial reports is described. [Ref. 4]

Chapter IV contains the data necessary to perform the analysis phase. It will examine the relevant information contained in the collected federal financial statements, develop the necessary database to perform the analysis and result in the calculation of the financial ratios for each of the reporting federal entities. In addition, Chapter IV will also be a descriptive and statistical study of the ratios calculated, a correlation of the data obtained from the statistical work and a descriptive interpretation of the results accomplished.

Chapter V contains a summary, conclusions of this thesis, and presents areas for further research.

E. BENEFITS OF THE STUDY

The analysis will be of primary benefit to those having the responsibility of managing the major federal agencies and departments. Since the financial ratio framework implemented has never been used, the results to be obtained are clearly unknown. However, any results should enable users to make understandable and relevant comparisons of federal financial reports. Furthermore, a financial ratio analysis should greatly decrease the amount of time taken to analyze and sift through the various financial statements.

II. FEDERAL GOVERNMENT FINANCIAL REPORTING MODEL

No one can argue the unadulterated size and variety of duties that the federal government of the United States must accomplish. Unmatched with regards to sheer expenditures, diversity of resources, and the nature of obligations, the financial side of the federal government is clearly a unique entity. [Ref. 2:p. 642] Mandated by statutes dating back to 1789, an accounting structure has been provided for the federal government of the United States of America. [Ref. 3:p. 504] However, inconsistencies and the overall unreliability of this accounting structure provided the impetus behind recent legislation that would force the federal government to adhere to many of the same standards of private businesses.

Following the passage of the Chief Financial Officers Act of 1990, the Government Performance and Results Act of 1993, the Government Management Reform Act of 1994, and the Federal Financial Management Improvement Act of 1996, Congress has called upon the federal government to develop an improved financial reporting model, with the ultimate goal being to rebuild the accountability and credibility of the Federal Government, and to restore public confidence in the Federal Government. [Ref. 3:p. 504]

In an effort to clarify the federal government financial reporting model, this chapter will examine the standard setting bodies within the federal government, the recent standard setting legislation, the users and objectives of federal financial reporting, the elements and characteristics of federal accounting, and the form and content of federal financial statements. The information presented within this chapter will be essential to providing a foundation for understanding the financial ratio framework explained and presented in Chapter III. [Ref. 4:p. 68]

A. STANDARD SETTING BODIES

The United States Code (31 U.S.C. 3512) requires the head of each executive agency to establish, evaluate, and maintain adequate systems of accounting and internal control. [Ref. 3:p. 504] Within the realm of the federal financial reporting environment, the establishment of standards falls under the oversight of five major bodies - the Department of the Treasury, the Office of Management and Budget (OMB), the General Accounting Office (GAO), the Congressional Budget Office (CBO), and the Financial Accounting Standards Advisory Board (FASAB). Encompassing two branches of the federal government (Figure 2-1), these five organizations set the standards for financial accounting and reporting in the U.S. Government. [Ref. 3:p. 508]

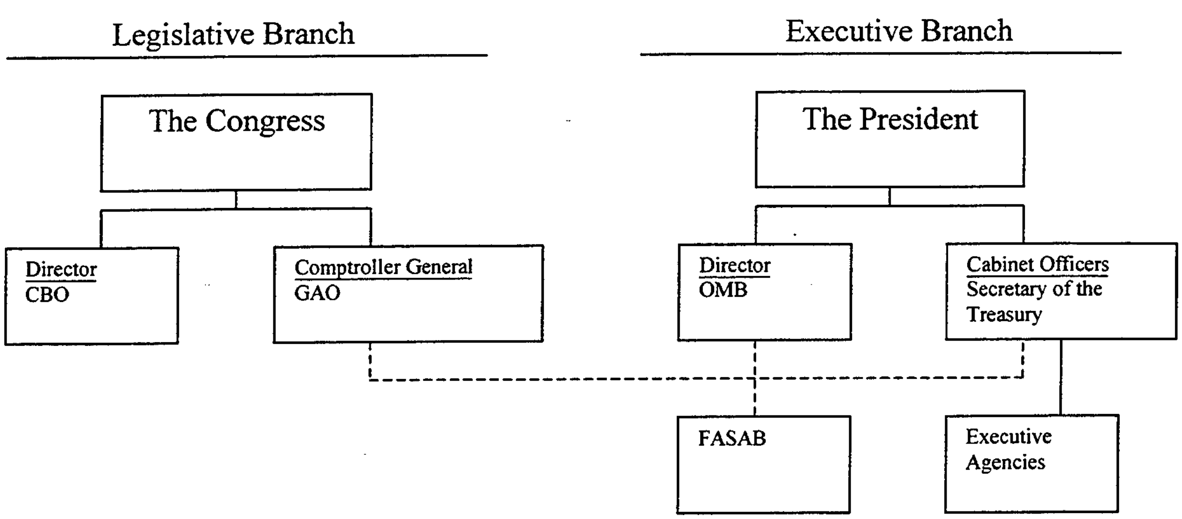

Figure 2-1: Federal Government Financial Management Structure

1. Department of the Treasury

The mission of the Department of Treasury is fourfold:

1. To promote prosperous and stable American and world economics.
2. To manage the government's finances.
3. To protect our financial systems and our nation's leaders, and to foster a safe and drug free America.
4. To continue to build a strong institution for the future. [Ref. 5:p. 1]

The Department of the Treasury was created in 1789 to receive, keep, and disburse monies of the United States, and to account for them. [Ref. 3:p. 505] In addition to these activities, recent financial management related responsibilities include: regulating the nations banking system, managing the public debt, and collecting receipts and making disbursements.

In order to accomplish these responsibilities, the Department of the Treasury employs fifteen different bureaus (Table 2-1).

Comptroller of the Currency	Internal Revenue Service	United States Mint
Bureau of Engraving and Printing	Financial Management Service	Bureau of the Debt
Bureau of Alcohol, Tobacco, and Firearms	Office of Thrift Supervision	Federal Law Enforcement Training Center
United States Savings Bond Division	United States Secret Service	United States Customs Service
Financial Crimes Enforcement Network	Community Development Financial Institutions	Treasury Forfeiture Fund

Table 2-1: Bureaus of the Department of the Treasury [Ref. 6:p. 2]

The most important bureau with respect to the federal financial reporting model is the Department's Financial Management Service bureau, which is the country's financial manager. This bureau receives and disburses all public monies, maintains government accounts, and prepares daily and monthly reports on the status of government finances. Additionally, it is responsible for gathering and publishing Government-wide financial information that is utilized by the public and private sectors to monitor the Government's financial status and establish fiscal and monetary policies. Lastly, the Financial Management Service serves other Federal entities by acting as the Government's:

- Principal disbursing agent
- Collections agent
- Account and reporter of financial information
- Collector of delinquent Federal debt

In performing its major functions, the Financial Management Service coordinates unity throughout all of the federal entity's accounting and reporting practices. [Ref. 6:p. 9-10]

2. The Office of Management and Budget

The primary mission of the Office of Management and Budget (OMB) is to assist the President in overseeing the preparation of the federal budget and to supervise its administration in Executive Branch agencies. In conjunction with these responsibilities, the OMB evaluates the effectiveness of agency programs, policies, and procedures, assesses competing funding demands among agencies, and sets funding priorities. In doing so, they ensure those agency reports, rulers, testimony, and proposed legislation are consistent with the President's budget and with Administration policies. [Ref. 7:p. 1]

With specific regards to the federal financial reporting environment, the OMB oversees and coordinates the Administration's financial management. Its role is to help improve administrative management, to develop better performance measures and coordinating mechanisms, and to reduce any unnecessary burdens on the public. [Ref. 2:p. 643] As per the Chief Financial Officer's Act of 1990 (to be discussed later in Chapter II), the OMB has the authority to prescribe the form and content of financial statements and other administrative reports. It does so by issuing bulletins and circulars that establish reporting, cost accounting, auditing and procurement standards. [Ref. 3:p. 507]

3. The General Accounting Office

Established by the Budget and Accounting Act of 1921 (31 U.S.C. 702), the General Accounting Office (GAO) performs independent audits of Government agencies and departments. The act specified that the GAO was to be, "independent of the executive departments and under the control and direction of the Comptroller General of the United States." The Reorganization Act of 1945 made it clear that the GAO was to be designated a division of the legislative branch, and over the years, Congress has expanded GAO's audit authority, added new responsibilities and duties, and strengthened GAO's ability to perform independently. [Ref. 2:p. 644]

The GAO, acting primarily as the government's auditor, conducts both financial and performance examinations of federal entities. [Ref. 8:p. 760] By virtue of this duty, they have been called the investigative arm of the Congress and are charged with examining all matters relating to the receipt and disbursement of public funds. [Ref. 4:p. 71]

Since 1950, the United States Code (31 U.S.C. 3511) has assigned the Comptroller General responsibility for prescribing the accounting principles, standards, and related requirements to be observed by each executive agency in the development of its accounting system. The executive branch has never acknowledged the constitutional authority of the Comptroller General to set accounting standards for the executive branch. Moreover, the Chief Financial Officers Act of 1990 assigns significant responsibility for establishing policies and procedures for approving and publishing accounting principle and standards (particularly as regards to agency financial reporting) to the Director of the Office of Management and Budget. Thus, both under the law and in fact, the responsibility for prescribing accounting principles and standards is now a joint responsibility. [Ref. 3:p. 505]

4. The Congressional Budget Office

The Congressional Budget Office (CBO), established in 1947 under The Congressional Budget and Impoundment Control Act, gathers information for the House and Senate budget committees with respect to the budget, appropriation bills, and other bills providing budget authority or tax expenditures. The CBO also provides the Congress with information concerning revenues, receipts, estimated future revenues and receipts, changing revenue conditions, and any related information-gathering and analytic functions assigned to the CBO. [Ref. 3:p. 507]

CBO's mission is to provide the Congress with the objective, timely, nonpartisan analyses needed for economic and budget decisions and with the information and estimates required for the Congressional budget process. CBO is a professional, nonpartisan staff office; it does not make recommendations on policy. In summary, CBO's services can be grouped in four categories: helping the Congress formulate a budget plan, helping it stay within that plan, helping it assess the impact of federal mandates, and helping it consider issues related to the budget and to economic policy. Ref. 9:p. 1]

5. Federal Accounting Standards Advisory Board

The FASAB was established in 1990 by the Secretary of the Treasury, the Director of the OMB, and the Comptroller General of the United States. The FASAB was created to consider and recommend accounting standards and principles for the Federal Government to improve the usefulness of Federal financial reports. The main responsibility of the Federal Accounting Standards Advisory Board (FASAB), is to recommend accounting standards to the Board's principals after considering the financial and budgetary information needs of congressional oversight groups, executive agencies, and the needs of other users of Federal financial information. [Ref. 10:p. 1]

As per OMB Circular A-134, the role of the FASAB is to:

> Deliberate upon and make recommendations to the Principals (Secretary of the Treasury, the Director of the OMB, and the Comptroller General of the United States) on accounting principles and standards for the Federal Government and its agencies. The MOU [Memorandum of Understanding] states that if the Principals agree with the recommendations, the Comptroller General and the Director of the OMB will publish the accounting principles and standards. [Ref. 11:par. 2]

Adopted accounting principles and standards are then published as Statements of Federal Accounting Standards (SSFAS), and are henceforth recognized as to be Federal general accepted accounting standards. [Ref. 4:p. 75] OMB Circular A-134 states the FASAB's authoritative status as such:

> SSFASs shall be considered generally accepted accounting principles (GAAP) for Federal Agencies. Agencies shall apply the SFFASs in preparing financial statements in accordance with the requirements of the CFO Act of 1990. Auditors shall consider SFFASs as authoritative references when auditing financial statements. [Ref. 11:par. 5.b]

Membership in the FASAB is composed of one member each from the Department of the Treasury, the OMB, the GAO, the CBO, the defense and international agencies, and civilian agencies. Additionally, there are three non-federal members selected each from the general financial community, the accounting and auditing community, and academia. [Ref. 4:p. 76]

The FASAB is designed to be a deliberative body that is independent of specific agency or regulatory control, but one that brings to the discussion table the unique needs and requirements of Federal agencies. The Board's composition is designed to ensure that the needs of the federal financial management community are considered in setting accounting and reporting standards. [Ref. 8:pp. 760-761]

The FASAB believes that accounting and financial reporting standards are essential for public accountability and for an efficient and effective functioning of our democratic system of government. Thus, federal accounting standards and financial reporting play a major role in fulfilling the government's duty to be publicly accountable. Federal accounting standards and federal financial reporting can be used to assess the government's accountability and its efficiency and effectiveness, and to contribute to the understanding of the economic, political, and social consequences of the allocation and various uses of federal resources. [Ref. 10:p. 1]

To assist in resolving issues related to the implementation of SFFASs, the FASAB established the Accounting and Auditing Policy Committee (AAPC). The AAPC is a task force of the FASAB and is charged with the timely identification, discussion, and resolution of accounting and auditing issues within the framework of the FASAB's authoritative pronouncements. The efforts of the AAPC result in authoritative implementation guidance for preparers and auditors of Federal financial statements in connection with the implementation of SSFAS and OMB Form, Content, and Audit Bulletins. [Ref. 12:p. 1]

To date, the FASAB and AAPC have released 35 documents related to Federal financial accounting and reporting. The FASAB is following the general pattern established by the FASB, which attempts to issue standards consistent with its several Statements of Financial Accounting Concepts; and the GASB, which looks to its "Concepts Statements." [Ref. 3:p. 510] The statements on concepts are more general than statements of standards and do not contain specific recommendations that would, when issued by the Board's sponsors, become authoritative requirements for federal agencies and auditors. Instead, statements on concepts, after approval by the Board's sponsors, provide general guidance to the FASAB itself as it deliberates on specific issues. They also help others to understand financial accounting and financial reports. [Ref. 13:par. 1-2] The FASAB also issues exposure drafts knows as Statements of Recommended Accounting Concepts (SRACs) and Statements of Recommended

Accounting Standards (SRASs). SRACs and SRASs are used to solicit feedback and engender discussion on the concepts and standards prior to their official implementation. Finally, the FASAB issues Technical Releases (TRs) to provide additional implementation guidance on SFFACs and SFFASs. [Ref. 4:p. 77]

B. STANDARD SETTING LEGISLATION

Beginning with the passage of the Chief Financial Officers Act of 1990, and continuing through approvals of the Government Performance and Results Act of 1993, the Government Management Reform Act of 1994, and the Federal Financial Management Improvement Act of 1996, Congress has called upon the federal government to improve and reform the entire federal financial reporting model.

1. Chief Financial Officer (CFO) Act of 1990

The Chief Financial Officer (CFO) Act, enacted into law by the 101st Congress in 1990, significantly changed the workings of the federal financial management system and is considered by many to be the most comprehensive financial reform package in 40 years. [Ref. 14.p. 1] Following the culmination of many years of attempts at financial management reform, the CFO Act of 1990 was passed as a way of correcting the following deficiencies:

- General management functions of the OMB needed to be significantly enhanced to improve the efficiency and effectiveness of the Federal Government.

- Financial management functions of the OMB needed to be significantly enhanced to provide overall direction and leadership in the development of a modern Federal financial management structure and associated systems.
- Billions of dollars were lost each year through fraud, waste, abuse, and mismanagement among the hundreds of programs in the Federal Government.
- These losses could have been been significantly decreased by improved management, including improved central coordination of internal controls and financial accounting.
- The Federal Government was in great need of fundamental reform in financial management requirements and practices as financial management systems were obsolete and inefficient, and did not provide complete, consistent, reliable, and timely information.
- Financial reporting practices of the Federal Government did not accurately disclose the present and probable future cost of operating and investment decisions, including the future need for cash or other resources, did not permit adequate comparison of actual costs among executive agencies, and did not provide the timely information required for efficient management of programs. [Ref. 15:sec. 102(a)]

The Act requires government agencies to improve financial reporting by integrating financial systems, improving internal control procedures, achieving compliance with federal accounting principles, and preparing audited financial statements. The CFO Act of 1990 established:

- Chief Financial Officer for the United States Government – also the Deputy Director for Management in the OMB, and is responsible for financial management in the United States Government.
- The Office of Federal Financial Management in the OMB – headed by a Controller serving as the Deputy Chief Financial Officer
- Infrastructure of Chief Financial Officers within the twenty-four major agencies and departments of the executive branch (Table 2-2).[1] [Ref. 16:p. 15]

Department of Defense	Department of Commerce	Department of Agriculture	Department of Education
Department of Energy	Department of Health and Human Services	Department of Housing and Urban Development	Department of the Interior
Department of Justice	Department of Labor	Department of State	Department of Transportation
Department of the Treasury	Department of Veterans Affairs	Agency for International Development	Environmental Protection Agency
Federal Emergency Management Agency	General Services Administration	National Aeronautics and Space Administration	National Science Foundation
Nuclear Regulatory Commission	Office of Personnel Management	Small Business Administration	Social Security Administration

Table 2-2: Departments and Agencies of the Executive Branch [Ref. 15:sec. 901]

Additional components of the Act were to require federal agencies to:

- Utilize an integrated accounting and financial management system, including financial reporting and internal controls.
- Comply with applicable federal accounting principles and standards.
- Provide information that is responsive to management needs.

[1] The CFO Act originally applied to 23 federal entities; however, the Social Security Administration was later added to arrive at the current number of 24 federal entities.

- Prepare financial statements for revolving funds, trust funds, and commercial activities. [Ref. 4:p. 81]

The final and most important initiative of the CFO Act of 1990 (and of primary importance to this thesis), was to require the preparation of the following six auditable consolidated financial statements (no later than 180 days after the end of the fiscal year).

- Balance Sheet
- Statement of Net Cost
- Statement of Changes in Net Position
- Statement of Budgetary Resources
- Statement of Financing
- Statement of Custodial Activity [Ref. 3:p. 515]

2. Government Performance and Results Act (GPRA) of 1993

The major deficiencies addressed by the GPRA of 1993 were:

- Waste and inefficiency in Federal programs undermined the confidence of the American people in the Government and reduced the Federal Government's ability to address adequately vital public needs.
- Federal managers were seriously disadvantaged in their efforts to improve program efficiency and effectiveness, because of insufficient articulation of program goals and inadequate information on program performance.
- Congressional policymaking, spending decisions and program oversight were seriously handicapped by insufficient attention to program performance and results. [Ref. 17:sec. 2(a)]

The GPRA was intended to reform federal government by requiring federal agencies to:

- Develop strategic plans describing their overall goals and objectives.
- Develop annual performance plans containing quantifiable measures of progress towards meeting the goals and objectives.
- Submit performance reports outlining their success in meeting standards and measures outlined in their performance plans. [Ref. 17]

The GPRA was designed to provide Congress and the policy-makers with reliable information concerning strategic plans, performance plans, and performance reports. Under this act, federal agencies would move away from simply measuring inputs, activities, and outputs to measuring outcomes. [Ref. 4:p. 83]

3. The Government Management Reform Act (GMRA) of 1994

The GMRA of 1994 was implemented with the objective of gaining control of federal finances. The Act was congressional reform intended to improve the way the federal agencies and departments operate to enhance the quality of service and promote cost savings measures. Major objectives of the Act include the following:

- Required annual audited financial reports covering in full the activities of the 24 federal reporting entities.
- Established programs designed to increase efficiency and cut operating costs within executive entities.

- Required federal reporting entities to submit yearly audited financial reports of their activities, spending, and revenue to the Director of the OMB. [Ref. 18:p. 2]
- Stipulated that the government would use electronic funds transfer (EFT) rather than conventional checks to reimburse people who began receiving federal salary for federal retirement payments after 01January1995.
- Authorized six executive agencies to create pilot franchising operations, allowing them to lower costs and share administrative support services with other agencies. [Ref. 19:sec. 402-403]
- Mandated federal agencies with various funds accounts to prepare annual audited financial statements.
- Required the government to produce a consolidated financial statement that would "reflect the overall financial position, including assets and liabilities, and results of operations of the executive branch of the United States Government." [Ref. 19:sec. 405(b)]

4. The Federal Financial Management Improvement Act (FFMIA) of 1996

The FFMIA of 1996 was implemented to improve federal accounting practices and enhance the ability of the government to provide more reliable, useful financial information. [Ref. 4:p. 84] The objective of the Act was to improve upon the following deficiencies:

- Federal accounting standards had not been uniformly implemented in financial management systems for agencies.
- Financial management and fiscal practices had failed to (a) identify costs fully; (b) reflect the total liabilities of congressional actions; and (c) accurately report the financial condition of the Federal Government.
- Current Federal accounting practices did not accurately report financial results of the Federal Government or the full costs of programs and activities.
- Continued waste and inefficiency. [Ref.20: sec. 802(a)]

The Act sought to improve upon the aforementioned deficiencies by requiring:

- Each entity to implement and maintain financial management systems that complied substantially with federal financial management systems requirements, applicable Federal accounting standards, and the United States Standard Government Ledger (SGL) at the transaction level.
- Auditors for each of the major federal entities to report whether the financial management systems were in compliance with Federal Financial Management Systems Requirements (FFMSR)[2], Federal Accounting Standards (FAS) and the SGL at the transaction level. [Ref. 20:sec. 803]

The FFMIA was designed as a link between the CFO Act of 1990, the GPRA of 1993, and the GMRA of 1996 to enhance the overall financial reporting and accountability of the government agencies. [Ref. 4:p. 86]

---

[2] The FFMSR are standards for agencies to follow in developing, operating, evaluating, and reporting on financial management statements.

C. USERS AND OBJECTIVES OF FEDERAL FINANCIAL REPORTING

SSFAC No. 1, "Objectives of Federal Financial Reporting," issued in 1993, is the FASAB's conceptual statement on the objectives of financial reporting by the federal government. [Ref. 4:p. 86] The objectives are designed to guide the FASAB in developing accounting standards to enhance the financial information reported by the federal government to:

- Demonstrate its accountability to internal and external users of federal financial reports.
- Provide useful information to internal and external users of federal financial reports.
- Help internal users of financial information improve the government's management.

These objectives reflect the federal environment in which the users of federal financial reports must operate. [Ref. 13:par. 3]

The federal government derives its powers from the consent of the people. As a result, its financial reporting accountability must be of the highest quality such that it accurately reflects the unique nature of the federal government and must provide information that is not only useful to the governed but also to those charged with its management. [Ref. 13:par. 8]

According to FASAB beliefs, it is pertinent to define the users and the needs of the users of federal financial reporting prior to defining the objectives of federal financial reporting. This is in part based upon the premise that the objectives of federal financial reporting must relate to the needs/wants of a specific stakeholder group. [Ref. 4:p. 87] SSFAC No. 1 defines the users of federal financial reporting as the citizens, Congress, executives, and program managers. [Ref. 13:par. 75] Table 2-3 summarizes the users and their needs as prescribed in SSFAC No. 1.

Citizens	Citizens are concerned about individual programs, candidates for office, the services the government provides, the outputs and outcomes of those services, the efficiency with which they are provided, the fiscal responsibility of their elected and appointed representatives, and the financial burden their children will inherit.
Congress	Congress participates along with the administration in the basic decisions that describe the intent of government. Therefore, their decisions are often influenced by assessing costs and benefits and by considering the effect of the government's aggregate financial requirements and impact on the economy.
Executives	Executives are concerned with the government's goals, objectives, and policies. In particular, they pay attention to budgets that, from the perspective of each agency, are the source of the resources needed to achieve goals and to implement policies.
Program Managers	Program managers establish operating procedures for their programs and manage them within the limits of the spending authority granted by Congress. As a result, they need to be able to provide information to enable executives and Congress to monitor their programs.

Table 2-3: Users/Needs of Federal Financial Reporting [Ref. 13:par. 76-87]

The concerns of the citizens, Congress, executives, and program managers define the following objectives of federal financial reporting: Budgetary Integrity, Operating Performance, Stewardship, and Systems and Control. [Ref. 13:par. 110] Table 2-4 summarizes these objectives and their elements as prescribed by SSFAC No. 1.

Budgetary Integrity	Federal financial reporting should assist in fulfilling the government's duty to be publicly accountable for monies raised through taxes, other approved means and for their legal expenditure. It should therefore provide information that helps users determine: (1) how budgetary resources have been obtained and used and whether their acquisition and use were in accordance with the legal authorization, (2) the status of budgetary resources, and (3) how information on the use of budgetary resources relates to information on the costs of programs and whether information on the status of budgetary resources is consistent with approved financial standards.
Operating Performance	Federal financial reporting should assist users in evaluating the service efforts, costs, and accomplishments of the reporting entity, the manner in which these efforts and accomplishments have been financed, and the management of the entity's assets and liabilities. It should therefore provide information that helps users determine: (1) the costs of providing specific programs and activities and the composition of, and changes in, these costs, (2) the efforts and accomplishments associated with federal programs and the changes over time and in relation to costs, and (3) the efficiency and effectiveness of the government's management of its assets and liabilities.
Stewardship	Federal financial reporting should assist users in assessing the impact on the country of the government's operations and investments for the period and how, as a result, the government's financial conditions have changed and may change in the future. It should therefore provide information that helps users to determine: (1) the government's financial position over a given period, (2) whether future budgetary resources will likely be sufficient to sustain public services and to meet obligations, and (3) whether government operations have contributed to the nation's current and future well being.
Systems and Control	Federal financial reporting should assist users in understanding whether financial management systems and internal accounting and administrative controls are adequate. It should therefore provide information that helps users determine whether: (1) transactions are executed in accordance to government accounting standards, (2) assets are properly safeguarded to deter fraud, waste, and abuse, and (3) performance measurement information is adequately supported.

Table 2-4: Objectives of Federal Financial Reporting [Ref. 13:par. 112-150]

D. ELEMENTS AND CHARACTERISTICS OF FEDERAL ACCOUNTING

1. Two-Track Accounting System

The accounting system of a federal agency must provide information needed for financial management as well as information needed to demonstrate that agency managers have complied with budgetary and other legal requirements. As a result, federal agency accounting is based on the following two-track system:

- Self-balancing proprietary accounts intended to provide information for agency management.
- Self-balancing budgetary accounts needed to insure that available budgetary resources and authority are not overexpended or overobligated, and to facilitate standardized budgetary reporting requirements. [Ref. 3:p. 526]

Table 2-5 summarizes the differences between the two tracks in terms of the timing of recognition of events and transactions.[3]

Budgetary Accounting	*Proprietary Accounting*
Entries are made for commitment of funds in advance of preparing procurement orders.	Entries are not made for commitments.
Entries are made for obligation of funds at the time goods and services are ordered.	Entries are not made for obligations.
Entries are made to expend appropriations when goods and services chargeable to the appropriation are received.	Assets that will last more than a year are capitalized and expensed when consumed.
Entries are only made against an appropriation for transactions funded by the appropriation.	Goods and services consumed in the current period for which payment is to be made from one or more subsequent appropriations is recognized as an expense in the current period.
Entries are not made against an appropriation for transactions not funded by the appropriation.	Goods and services consumed in the current period but paid for in prior periods are expensed in the current period.

Table 2-5: Budgetary vs. Proprietary Accounting [Ref. 21:pp. 2-3]

2. Accounting Policies

a. *Assets*

SSFAS No. 1 specifies the following four classifications of assets:

- Entity assets – Assets the reporting entity has authority to use in its operations.
- Non-entity assets – Assets held by the entity but are not available for the entity to spend.
- Intragovernmental assets (liabilities) – Claims by (against) a reporting entity that arise from transactions between that entity and other reporting entities.
- Governmental assets (liabilities) – Arise from transactions of the federal government or any entity of the federal government with nonfederal entities. [Ref. 22:par. 18-26]

(1) *Cash*. In most federal agencies *Fund Balance with Treasury* is used rather than *Cash* to indicate that the agency has a claim against the U.S. Treasury on which it may draw to pay liabilities. Most federal entities must request that the Treasury issue checks to pay their liabilities, but few entities (such as the Department of Defense) are authorized to write and issue checks directly against their balances with the Treasury. For these entities, bank balances would be reported as *Cash*. [Ref. 22:par. 27-30]

---

[3] The FASAB does not recommend principles or standards for the budgetary accounts, but they do recommend accounting principles that will support the budgetary process. [Ref. 4:p. 91]

(2) *Accounting for Inventory and Related Property.* Inventory is defined as "tangible personal property that is held for sale, in the process of production for sale, or to be consumed in the production of goods for sale or in the provision of services for a fee." Additional types of inventory and related property include stockpiled materials, seized and forfeited property, foreclosed property, and goods held under price support and stabilization programs.[4] Inventory may be valued at either historical cost or latest acquisition cost. [Ref. 16:p. 4]

(3) *Accounting for Plant, Property, and Equipment (PP&E).* SSFAS No. 6 establishes standards for four categories of PP&E. Table 2-6 summarizes these categories, and provides a description of their treatment with respect to federal financial reporting.

PP&E	Standards	Treatment
General PP&E	PP&E used to provide general government goods and services.	Capitalized at acquisition cost (except for land)
Federal Mission PP&E	PP&E that exhibits other characteristics set by the FASAB (such as military weapons systems and space exploration equipment).	Stewardship PP&E – reported at cost
Heritage Assets	PP&E that posses educational, cultural, or natural characteristics	Stewardship PP&E – reported at cost
Stewardship Land	Land other than that included in General PP&E (such as national parks).	Stewardship PP&E – reported at cost

Table 2-6: PP&E Classifications [Ref. 24:par. 23-76]

b. ***Liabilities***

Liabilities covered by budgetary resources (funded) and liabilities not covered by budgetary resources (unfunded) must be reported separately on an entity's balance sheet. Funded liabilities are those for which monies have been made available

[4] Supplies consumed in operations are reported as *operating materials and supplies*. [Ref. 23:par. 36]

either through Congressional appropriations or current earnings of the entity. Unfunded liabilities result from the receipt of goods or services in the current or prior periods but for which monies have not yet been made available through Congressional appropriations or current earnings of the entity. [Ref. 22:par. 74-86]

Liabilities and their recognition criteria not exhibiting the characteristics mentioned above are listed in Table 2-7.

Exchange Transactions	When one party receives goods or services in exchange for a promise to provide money or other resources in the future
Nonexchange Transactions	Any unpaid amounts due at the end of the fiscal period
Government-related Events	When the event occurs, if the future outflow of resources is probable and measurable
Government-acknowledged Events	When the government formally acknowledges responsibility for an event and a nonexchange or exchange transaction has occurred
Contingencies	Generally disclosed in the notes
Capital Leases	In the amount of the present value of the rental and other minimum lease payments
Federal Debt	When an exchange transaction occurs between involved parties (original issue premiums and discounts are amortized using the effective interest method)
Pensions	At time employees' services are rendered
Insurance and Guarantee Programs	For unpaid claims incurred as a result of insured events that have already occurred

Table 2-7: Recognition Criteria for Liabilities [Ref. 25:par. 20-34]

E. FORM AND CONTENT OF THE FINANCIAL STATEMENTS OF THE U.S. GOVERNMENT

OMB Bulletin No. 97-01, "Form and Content of Agency Financial Statements," defines the form and content for financial statements of the Executive Branch of the United States Government, as required by the CFO Act of 1990. [Ref. 4:p. 94]

OMB Bulletin 97-01 specifies the following minimum requirements that the financial statements of the agencies of the U.S. Government contain:

- Management's Discussion and Analysis

- Principal Statements and Notes
- Required Supplemental Stewardship Information
- Required Supplemental Information.[5] [Ref. 26:pp. 4-5]

The principal financial statements mentioned above are as follows:

- Balance Sheet
- Statement of Net Cost
- Statement of Changes in Net Position
- Statement of Budgetary Resources
- Statement of Financing
- Statement of Custodial Activity

1. Balance Sheet

The Balance Sheet presents, as of a specific time, amounts of future economic benefits owned or managed by the reporting entity exclusive of items subject to stewardship reporting (assets), amounts owed by the entity (liabilities), and amounts which comprise the difference (net position). [Ref. 26:p. 16]

The balance sheet presents entity assets separately from non-entity assets. The balance sheet also separately presents funded liabilities and unfunded liabilities. [Ref. 4:p. 95] Figure 2-2 is a sample, single-column balance sheet.

2. Statement of Net Cost

The statement of net cost should show the net cost of operations for the reporting entity as a whole and its sub-organizations and programs. In the statement of net cost,

[5] Any other relevant information useful for understanding the reporting entity should also be included.

exchange revenues are deducted from gross operating costs to show the net cost of the entity's operating activities. This is the amount for which the entity is responsible and that must ultimately be paid by the taxpayer through taxes and other demand type revenues or financed by government borrowing. All operating costs and applicable exchange revenues should be shown in the statement of net cost. [Ref. 4:p. 97] Figure 2-3 is a sample Statement of Net Cost.

ASSETS						
	Entity					
		Intragovernmental				
			Fund Balance with Treasury	XXX		
			Investments	XXX		
			Accounts Receivable	XXX		
		Total Intragovernmental			XXX	
		Investments			XXX	
		Accounts Receivable			XXX	
		Loans Receivable			XXX	
		Inventory and Related Property			XXX	
		General PP&E			XXX	
	Total Entity					XXX
	Non-Entity					
		Intragovernmental				
			Fund Balance with Treasury	XXX		
			Accounts Receivable	XXX		
		Total Intragovernmental		XXX		
		Accounts Receivable			XXX	
		Taxes Receivable			XXX	
		Cash and Other Monetary Assets			XXX	
	Total Non-Entity				XXX	
Total Assets						**XXX**
LIABILITIES						
	Funded Liabilities					
		Intragovernmental				
			Accounts Payable	XXX		
			Debt	XXX		
		Total Intragovernmental			XXX	
		Accounts Payable		XXX		
		Loan Guarantees		XXX		
		Public Debt		XXX		
		Federal Employee and Veterans Benefits		XXX		
	Total Funded Liabilities				XXX	
	Unfunded Liabilities					
		Intragovernmental				
			Accounts Payable	XXX		
			Debt	XXX		
		Total Intragovernmental			XXX	
		Accounts Payable		XXX		
		Loan Guarantees		XXX		
		Public Debt		XXX		
		Federal Employee and Veterans Benefits		XXX		
	Total Unfunded Liabilities				XXX	
Total Liabilities						**XXX**
NET POSITION						
	Unexpended Appropriations				XXX	
	Cumulative Results of Operations				XXX	
Total Net Position						XXX
TOTAL LIABILITIES AND NET POSITION						XXX

Figure 2-2: Sample Balance Sheet [Ref. 26:p. 14-15]

COSTS	Sub-Organization A	Sub-Organization B	Total
Crosscutting Programs			
Program A			
Intragovernmental	XXX	XXX	XXX
Public	XXX	XXX	XXX
Net Program Costs	XXX	XXX	XXX
Other Programs			
Program B	XXX	XXX	XXX
Program C	XXX	XXX	XXX
Program D	XXX	XXX	XXX
Program E	XXX	XXX	XXX
Other Programs	XXX	XXX	XXX
Total Other Programs	XXX	XXX	XXX
Costs Not Assigned to Programs	XXX	XXX	XXX
Total Costs	XXX	XXX	XXX
REVENUES			
Intragovernmental	XXX	XXX	XXX
Revenues Not Attributable to Programs	XXX	XXX	XXX
Interest Revenue	XXX	XXX	XXX
Total Revenues	XXX	XXX	XXX
NET COST OF OPERATIONS	XXX	XXX	XXX

Figure 2-3: Sample Statement of Net Cost [Ref. 26:p. 25]

3. Statement of Changes in Net Position

The statement of changes in net position reports the beginning net position, the items which caused the net position to change over the reporting period, and the ending net position. This statement displays the entity's non-exchange revenues and financing sources as well as the cumulative net position of the entity. [Ref. 26:p. 31] Figure 2-4 is a sample Statement of Changes in Net Position.

4. Statement of Budgetary Resources

The statement of budgetary resources provides information about how budgetary resources were made available as well as their status at the end of the period. This report is prepared by organizations that receive any amount of budgetary resources. Since monitoring of budget execution is at the individual account level, budgetary information provided in the statement of budgetary resources should be disaggregated for each of the reporting entity's major budget accounts and presented in supplementary information. [Ref. 68:p. 34] Figure 2-5 is a sample Statement of Budgetary Resources.

	Sub-Organization A	Sub-Organization B	Total
Net Cost of Operations	XXX	XXX	XXX
Financing Sources			
Appropriations Used	XXX	XXX	XXX
Taxes	XXX	XXX	XXX
Donations	XXX	XXX	XXX
Imputed Financing	XXX	XXX	XXX
Transfers-In	XXX	XXX	XXX
Transfers-Out	XXX	XXX	XXX
Net Results of Operations	XXX	XXX	XXX
Prior Period Adjustments	XXX	XXX	XXX
Net Changes in Cumulative Results of Operations	XXX	XXX	XXX
Change in Unexpended Appropriations	XXX	XXX	XXX
Change in Net Position	XXX	XXX	XXX
Net Position-Beginning			XXX
Net Position-Ending			XXX

Figure 2-4: Sample Statement of Changes in Net Position [Ref. 26:p. 30]

	Major Budget Acct.	Major Budget Acct.	Total
Budgetary Resources			
Budget Authority	XXX	XXX	XXX
Un-obligated Balances	XXX	XXX	XXX
Net Transfers	XXX	XXX	XXX
Spending Authority from Offsetting Collections	XXX	XXX	XXX
Adjustments	XXX	XXX	XXX
Total Budgetary Resources	XXX	XXX	XXX
Status of Budgetary Resources			
Obligations Incurred	XXX	XXX	XXX
Un-obligated Balances (available)	XXX	XXX	XXX
Un-obligated Balances (unavailable)	XXX	XXX	XXX
Total Status of Budgetary Resources	XXX	XXX	XXX
Outlays			
Obligations Incurred	XXX	XXX	XXX
(Spending Authority from Offsetting Adj.)	XXX	XXX	XXX
Net Obligations Incurred	XXX	XXX	XXX
Obligated Balance (beginning)	XXX	XXX	XXX
Obligated Balance Transferred	XXX	XXX	XXX
(Obligated Balance (ending))	XXX	XXX	XXX
Total Outlays	XXX	XXX	XXX

Figure 2-5: Sample Statement of Budgetary Resources [Ref. 26:p. 33]

5. Statement of Financing

The statement of financing provides a reconciliation of the accrual-based accounting used in the statement of net cost with the budgetary accounting used in the statement of budgetary resources. This reconciliation insures that there is a proper relationship between proprietary and budgetary accounts in the reporting entity's financial management system. [Ref. 26:p. 39] Figure 2-6 is a sample Statement of Financing.

Obligations and Non-Budgetary Resources		
Obligations Incurred	XXX	
(Spending Authority for Offsetting Adj.)	XXX	
Donations not in Budget	XXX	
Financing Imputed for Cost Subsides	XXX	
Transfers-Out	XXX	
Exchange Revenue not in Budget	XXX	
Total Obligations and Non-Budgetary Resources		XXX
Resources that do not Fund Net Cost of Operations		
Change in amounts of G&S Ordered but not Received	XXX	
Costs Capitalized on Balance Sheet	XXX	
Financing Sources that Fund Costs of Prior Periods	XXX	
Total Resources that do not Fund Net Cost of Operations		XXX
Costs that do not Require Resources		
Depreciation and Amortization	XXX	
Revaluation of Assets and Liabilities	XXX	
Total costs that do not Require Resources		XXX
Financing Sources yet to be Provided		XXX
Net Cost of Operations		**XXX**

Figure 2-6: Sample Statement of Financing [Ref. 26:p. 35]

6. Statement of Custodial Activity

The Statement of Custodial Activity is only required for entities that collect non-exchange revenue for the General Fund of the U.S. Treasury, a trust fund, or other recipient entities. [Ref. 26:p. 39] Figure 2-7 is a sample Statement of Custodial Activity.

Revenue Activity	Year	Year
Sources of Cash Collections		
Individual Income and FICA/SECA Taxes	XXX	XXX
Corporate Income Taxes	XXX	XXX
Excise Taxes	XXX	XXX
Estate and Gift Taxes	XXX	XXX
Federal Unemployment Taxes	XXX	XXX
Customs Duties	XXX	XXX
Miscellaneous	XXX	XXX
Total Cash Collections	XXX	XXX
Accrual Adjustments	XXX	XXX
Total Custodial Revenue	XXX	XXX
Disposition of Collections		
Transferred to Others		
Recipient A	XXX	XXX
Recipient B	XXX	XXX
Recipient C	XXX	XXX
Changes in Amounts Yet to be Transferred	XXX	XXX
Refunds and other Payments	XXX	XXX
Retained by the Reporting Entity	XXX	XXX
Net Custodial Revenue Activity	0	0

Figure 2-7: Sample Statement of Custodial Activity [Ref. 26:p. 38]

This chapter attempted to provide a broad familiarization with the federal financial reporting model. Standard setting bodies and legislation, accounting policy concepts, and financial reporting formats were necessary components of such an objective.

Chapter III will examine the financial ratio framework to be implemented in this thesis' analysis. It will draw on prior thesis research, and will attempt to explain the method and rational behind the development of such a financial ratio framework.

III. FINANCIAL RATIO FRAMEWORK FOR AUDITED FEDERAL FINANCIAL REPORTS

A. FINANCIAL RATIO FRAMEWORK DEVELOPMENT

1. Introduction

As stated in Chapter I, the primary purpose of this thesis is to conduct a descriptive analysis of the financial condition of major federal government agencies and departments. The analysis will rely on information reported in Chief Financial Officer statements. Chapter II provided the necessary background information needed to understand the federal reporting model since its initial inception approximately ten years ago. In an attempt to achieve this thesis' primary purpose, I will employ a previously developed financial ratio framework to perform my analysis. This Chapter will describe the aforementioned financial ratio framework, with the result being a summary discussion of the method used in developing the framework. I will rely on research performed in "Framework for Financial Ratio Analysis of Audited Federal Financial Reports." [Ref. 4:Ch. V]

The financial ratio framework to be employed resulted from a detailed analysis and discussion of existing financial ratio frameworks for the following three sectors:

- Private for-profit sector
- Private non-for-profit sector
- State and Local Government sector [Ref. 4:pp. 21-65]

To provide a detailed description of the existing ratio framework research performed by Brady is beyond the scope of this thesis. Further explanation can be sought by reviewing Brady's thesis. [Ref. 4:pp. 21-65]

In developing his theoretical federal financial ratio framework, Captain Brady was unable to rely solely on any existing ratio framework. This is primarily due to the existence of two major differences between the federal financial accounting and reporting environment, and the three environments mentioned above. First, federal agencies use appropriated funds for specific programs based upon the Planning, Programming, and Budgeting System (PPBS). Federal funds are appropriated to these individual agencies based on their missions and the financial needs of these programs. As a result, the financial data of both individual programs and the agencies as a whole must be analyzed. Secondly, most federal agencies cost money rather than make it in conducting their operations. Therefore, it is important to view the agencies as cost centers and to highlight the importance of cost to the agencies. [Ref. 4:p. 103]

2. Objectives of the Federal Financial Ratio Framework.

The objective of ratio analysis is the facilitation of financial statement interpretation. Reducing the large number of financial statement items into a relatively small set of ratios allows for meaningful comparisons of financial data both over time and across reporting entities for a given time period. [Ref. 4:p. 104]

Providing those users of federal financial reports with the relevant information that will assist in making better informed management decisions is the primary objective of a federal financial ratio framework. [Ref. 4:p. 104] As stated in this thesis' Chapter

II, the ultimate goal of the federal financial reporting environment is to rebuild the accountability and credibility of the Federal Government, and to restore public confidence in the Federal Government. A federal financial ratio framework may provide the necessary means to accomplish this goal.

Chapter II of this thesis provided a description of the following users of financial reports:

- Citizens
- Congress
- Executives
- Program Managers

In addition, the following objectives of federal financial reporting were discussed:

- Budgetary Integrity
- Operational Effectiveness
- Stewardship
- Systems and Control

In attempting to accomplish the goal of financial ratio frameworks, a federal financial ratio framework will benefit those users with managerial and decision authority within federal reporting entities. Specifically, a framework should be able to incite questions amongst the users with respect to those specific objectives of federal financial reporting.

The federal financial ratio framework will not provide definite answers. Instead, it is intended to provide information on the symptoms of the reporting entities economic condition and guide the user or analyst in the interpretation of the financial statements. [Ref. 4:p. 105]

3. Federal Financial Ratio Framework Methodology

As a means of developing his federal financial ratio framework, Brady employed the following four steps:

1. Identification of relevant factors important in assessing the objective of federal financial reporting under consideration. These factors are contained in SSFAC No. 1, issued by the FASAB.
2. Identification of the financial reports and financial report line items that provide information on the specific objective of federal financial reporting under consideration.
3. Relation of financial report line items with each other from financial reports identified in No. 2 above. Those that provide minimum information content without redundancy are accepted. Those with no logical value and/or redundant ratios are rejected.
4. Identification of those ratios that provide the most relevant information on the objective of federal financial reporting under consideration are classified under that specific objective grouping. [Ref. 4:p. 107]

The next section of this chapter will be discussion of those ratios chosen with respect to each federal financial reporting objective. The result will be the explanation of each ratio chosen and the development of a federal financial ratio framework.

B. FEDERAL FINANCIAL RATIOS

1. Budgetary Integrity

Federal financial statements should produce information that will assist the users in determining how budgetary resources were obtained and used by the reporting entity. As stated by the SSFAC No. 1, "…how budgetary resources have been obtained and used and whether their acquisition and use were in accordance with legal authorization…" Therefore, the goal of the Budgetary Integrity objective is public accountability for monies raised and expensed through government operations. [Ref. 13:par. 13]

The principal financial statement employed in evaluating a reporting entity's Budgetary Integrity will be the Statement of Budgetary Resources. Combined with data from other financial statements, ratios that provide information relevant to assessing Budgetary Integrity can now be discussed. [Ref. 4:p. 108] Table 3-1 provides a list of those Budgetary Integrity ratios to be employed within the federal financial ratio framework.

Ratio	Ratio Calculation	Federal Reporting Objective
Compliance/Antideficiency Ratio	Obligations Incurred / Total Budgetary Resources	Budgetary Integrity
Percentage of Uncovered Liabilities Ratio	Total Liabilities Not Covered By Budgetary Resources / Total Liabilities	Budgetary Integrity
Return on Total Resources	Total Outlays / Total Budgetary Resources	Budgetary Integrity
Reliance on Other Sources of Funding Ratio	Obligations Incurred-Budget Authority / Budget Authority	Budgetary Integrity

Table 3-1: Budgetary Integrity Ratios [Ref. 4:p. 116]

- *Compliance/Antideficiency Ratio*: This ratio is intended to measure the extent to which the reporting entity obligated their funds as a percentage of Total

Budgetary Resources. It describes the relationship between Obligations Incurred, Net and total Budgetary Resources. Under normal operating circumstances, this ratio should be below 100%. Otherwise, the reporting entity may be in violation of Title 10 U.S.C. 1517 by over-obligating their funds in excess of budgetary resources available. Low obligation rates may be characteristic of entities that use multi-year appropriations or that have large procurement accounts. [Ref. 4:pp. 116-117]

- *Percentage of Uncovered Liabilities Ratio*: This ratio is intended to measure the amount of Liabilities Not Covered by Budgetary Resources that the reporting entity maintains as a percentage of Total Liabilities. It provides an indication of possible future uses of funds. A high ratio value may indicate that the reporting entity will need substantially higher amounts of budget authority or need to find other sources of funds. A low ratio value may indicate that the level of funding currently being received is adequate to maintain the current level of Liabilities not Covered by Budgetary Resources. [Ref. 4:p. 117]
- *Return on Total Resources Ratio*: This ratio is intended to be a measure of the return the entity received on Total Budgetary Resources in terms of Total Outlays. Total Outlays provides an accurate figure of the value of goods and services the reporting entity actually paid for during the reporting period. This ratio serves as a measure of the use of funds under the Budgetary

Integrity objective. A high ratio value may indicate a faster or more efficient operating or acquisition cycle. [Ref. 4:p. 117]

- *Reliance on Other Sources of Funding Ratio*: This ratio is intended to measure the extent to which the reporting entity had to rely on sources of funding other than appropriated funds. It also measures the sources and uses of the funds under the Budgetary Integrity objective. Ratios over 100% could indicate that the reporting entity had to rely on some other source of funding in order to fund all of its obligations for the reporting period. [Ref. 4:pp. 117-118]

2. Operating Efficiency

The goal of the Operating Efficiency objective is to assist users in evaluating the reporting entity's service efforts, costs, and accomplishments. [Ref. 13:par. 122] Because the government's services are not usually exchanged for voluntary payments or fees, expenses cannot be matched against revenue to measure "earnings" or "net income." Secondly, there exists much difficulty in measuring the value added to society's welfare by government actions. As a result, some other basis must be pursued to determine the relative position of net cost. Fortunately, expenses can be matched against a level of services from year to year. Unfortunately, this may require the use of information that is not directly available in the financial statements. [Ref. 13:par. 124]

Nevertheless, such an expansive and general objective can be accomplished. Despite the obvious need to examine information in all of an entity's financial statements, the following statements will be used in evaluating an entity's Operating Performance: Statement of Net Cost and Statement of Changes in Net Position. [Ref. 4:p. 110] Table

3-2 provides a list of those Operating Performance ratios to be employed within the federal financial ratio framework.

Ratio	Ratio Calculation	Federal Reporting Objective
Operating Efficiency Ratio	$\frac{\text{Net Cost of Operations}}{\text{Service Base}}$	Operating Performance
Return on Net Cost	$\frac{\text{Net Results of Operations}}{\text{Net Cost of Operations}}$	Operating Performance
Return on Appropriated Funds	$\frac{\text{Net Results of Operations}}{\text{Appropriations Used}}$	Operating Performance
Unassigned Program Cost to Total Cost of Operations	$\frac{\text{Total Cost Not Assigned to Programs}}{\text{Total Cost of Operations}}$	Operating Performance

Table 3-2: Operating Performance Ratios [Ref. 4:p. 116]

- *Operating Efficiency Ratio*: This ratio is intended to measure the overall operating performance and efficiency of the reporting entity in terms of their Net Cost of Operations and some service base unique to the reporting entity. The service base unique to the reporting entity should be identified in the reporting entity's accountability report. As a result, this ratio is entity-specific. [Ref. 4:p. 118]
- *Return on Net Cost Ratio*: This ratio is intended to measure the return the reporting entity received on the net cost they spent on operations in terms of the net results they received from their operations. As a result, it provides an indication of the reporting entity's service efforts and accomplishments. A high ratio value would indicate that the reporting entity received a high return on the net cost they spent on operations. This could indicate that the reporting entity has made sound investments and efficient operation decisions. A low ratio value could indicate that some other factor influenced the ratio, requiring further analysis. [Ref. 4:p. 118]

- *Return on Appropriated Funds Ratio*: This ratio is intended to measure the return the reporting entity received on their Appropriations Used in terms of their Net Results of Operations. It serves as a measure of service efforts and accomplishments. A high ratio could indicate that the reporting entity received a high return on the funds appropriated by Congress and used by the entity. As a result, this ratio could be of particular interest for users of federal financial reports who make decisions on agency appropriations (i.e., Congress). [Ref. 4:p. 119]
- *Unassigned Program Cost to Total Cost of Operations*: This ratio is intended to be a measure of the accuracy to which the reporting entity can capture its costs and assign them to programs. As a result, it can be used as a means of better understanding the cost drivers of the reporting entity. A high ratio may indicate that the reporting entity does not accurately capture its costs and therefore does not know the true cost of its operations or programs. [Ref. 4:p. 119]

3. Stewardship

The goal of the Stewardship objective is based on the government's responsibility for the general welfare of the nation as a going concern. This includes information as to whether or not the reporting entity's financial position has improved or deteriorated, whether future budgetary resources will be sufficient to meet future expenses, and whether the entity's operations have contributed to the nation's current and future well-being. [Ref. 4:p. 112]

As a result, stewardship measures provide a means of assessing the reporting entity's ability to manage those assets which have been entrusted to it, and how the financial condition of the government and nation has changed as a result of that management. Since the Balance Sheet provides primary information on the assets, liabilities, and net position of the entity, it will be the principal statement used for Stewardship ratios. [Ref. 4:p. 112] Table 3-3 provides a list of those Stewardship ratios to be employed within the federal financial ratio framework.

Ratio	Ratio Calculation	Federal Reporting Objective
Total Asset Maintenance	$\frac{\text{Total Assets}}{\text{Appropriations Used}}$	Stewardship
Fixed Assets to Total Assets	$\frac{\text{PP\&E}}{\text{Total Assets}}$	Stewardship
Inventory to Assets	$\frac{\text{Operating Materials \& Supplies}}{\text{Total Assets}}$	Stewardship
Depreciation to Total Cost	$\frac{\text{Depreciation Expense}}{\text{Total Cost Operations}}$	Stewardship
Capital Investment Ratio	$\frac{\text{Change in PP\&E}}{\text{Total Assets}}$	Stewardship

Table 3-3: Stewardship Ratios [Ref. 4:p. 116]

- *Total Asset Maintenance Ratio*: This ratio is intended to be a measure of the level of appropriations used to maintain a given level of assets. As a result, it provides an indication of the reporting entity's ability to manage its assets. A high ratio value could indicate that the reporting entity does not need to utilize a large amount of funding to sustain its assets and that those assets might be self-sustaining. A low ratio value could indicate that the reporting entity is reliant on appropriations to sustain a given level of assets. [Ref. 4:pp. 119-120]

- *Fixed Assets to Total Assets Ratio*: This ratio measures the Fixed Assets of a reporting entity as a percentage of their Total Assets. Therefore, this ratio is an indication of the proportion of assets that are tied up on long-term, relatively illiquid property. The higher the ratio, the less flexible management of the reporting entity may be in making resource allocation decisions. [Ref. 4:p. 120]
- *Inventory to Assets Ratio*: This ratio is a measure of the percentage of Total Assets that are made up of Inventory. Therefore, this ratio is an indication of the level of total assets that are tied up in inventory. A high ratio value may indicate inefficiency in managing inventories while a low ratio may indicate efficiency in managing inventories. [Ref. 4:p. 120]
- *Depreciation to Total Cost Ratio*: This ratio is intended to be a measure of the rate at which the reporting entity is depreciating their capitalized assets. Therefore, it provides a measure of both the reporting entity's ability to manage its assets and how the financial condition of the reporting has changed as a result of its management decisions. This ratio can not only be a good measure of the rate at which the reporting entity's assets are depreciating, but also a good indicator of the relative aggressiveness of the reporting entity's accounting policies. [Ref. 4:pp. 120-121]
- *Capital Investment Ratio*: This ratio is intended to be a measure of the rate at which the reporting entity is investing in capital assets. A high ratio value may indicate that the reporting entity is not investing in capital assets at a rate

which will sustain them, is contracting operations, or is putting off capital investment to a future period. [Ref. 4:p. 121]

4. Systems and Control

The primary goal of the Systems and Control objective is one of internal controls. This objective is to assist users in understanding whether the underlying financial management systems and internal accounting and control mechanisms are sufficient to ensure Budgetary Integrity, Operating Performance, and Stewardship objectives are achieved. [Ref. 4:p. 114]

The ability to prepare federal financial reports that report all transactions, classified in appropriate ways, that faithfully represent the underlying events is itself an indication that certain essential controls are in place and operating efficiently. Combined with an auditor's opinion, the preparation of reliable financial reports helps to ensure that reporting entities have early warning of potential problems and can take actions to correct those problems. [Ref. 13.par. 148]

In conclusion, the Systems and Control objective is a process-based objective to ensure the quality of the information contained in the federal financial reports. As a result, the objective of Systems and Control cannot be assessed via ratio analysis. [Ref. 4:p. 114]

C. FEDERAL FINANCIAL RATIO FRAMEWORK

This chapter has sought to provide a summary discussion of the means by which a federal financial ratio framework was developed. Table 3-4 provides the final and inclusive ratio framework. Any clarifying explanations on the methodology and framework development process can be found within Brady's thesis. [Ref. 4:pp. 103-121]

Chapter IV will explain the data necessary to perform the analysis phase. It will examine the relevant information contained in the collected federal financial statements, develop the necessary database to perform the analysis and result in the completion of the financial ratio framework for each of the reporting federal entities.

Ratio	Ratio Calculation	Federal Reporting Objective
Compliance/Antideficiency Ratio	Obligations Incurred / Total Budgetary Resources	Budgetary Integrity
Percentage of Uncovered Liabilities Ratio	Total Liabilities Not Covered By Budgetary Resources / Total Liabilities	Budgetary Integrity
Return on Total Resources	Total Outlays / Total Budgetary Resources	Budgetary Integrity
Reliance on Other Sources of Funding Ratio	Obligations Incurred-Budget Authority / Budget Authority	Budgetary Integrity
Operating Efficiency Ratio	Net Cost of Operations / Service Base	Operating Performance
Return on Net Cost	Net Results of Operations / Net Cost of Operations	Operating Performance
Return on Appropriated Funds	Net Results of Operations / Appropriations Used	Operating Performance
Unassigned Program Cost to Total Cost of Operations	Total Cost Not Assigned to Programs / Total Cost of Operations	Operating Performance
Total Asset Maintenance	Total Assets / Appropriations Used	Stewardship
Fixed Assets to Total Assets	PP&E / Total Assets	Stewardship
Inventory to Assets	Operating Materials & Supplies / Total Assets	Stewardship
Depreciation to Total Cost	Depreciation Expense / Total Cost of Operations	Stewardship
Capital Investment Ratio	Change in PP&E / Total Assets	Stewardship

Table 3-4: Federal Financial Ratio Framework [Ref. 4:p. 116]

IV. FINANCIAL RATIO FRAMEWORK ANALYSIS

A. BACKGROUND

Chapter III of this thesis explained the framework for financial ratio analysis, which this thesis will employ to perform an empirical analysis. Specifically, this chapter will describe the data necessary to perform the analysis phase. It will examine the relevant information contained in the collected federal financial statements, develop the necessary database to perform the analysis and result in the calculation of the financial ratios for each of the reporting federal entities. In addition, this chapter will provide a descriptive and statistical study of the ratios calculated, a correlation analysis, and an interpretation of the findings.

B. METHODOLOGY

The methodology in this chapter consists of two phases. The first phase is the data collection phase, and securing the data sufficient to perform the analysis. This phase consists of six major steps.

The first step is the identification of major federal reporting agencies and departments. These entities are reported within the literature of the Chief Financial Officers Act of 1990 and are listed in Chapter I of this thesis.

The second step is the identification of an appropriate financial ratio framework for analyzing the financial condition of federal agencies and departments. This thesis will apply the framework developed and discussed in Chapter III of this thesis.

The third step is the collection of recent financial statements of the federal entities to be studied. The majority of these data were retrieved using online sources. The only exceptions were the following three federal entities: The Department of Commerce, The Department of Education, and the Small Business Administration. With respect to these three federal agencies, direct correspondence with the entities themselves resulted in mailed hard copies of each department's financial reports. In an effort to maintain consistency and completeness of the analysis, this thesis used financial statements resulting from operations in fiscal year 1998. This was necessary because of the unavailability of any entity's fiscal year 1999 financial statements. Unavailability was not due to any known failure by the reporting entities, but instead resulted from the time frame reporting requirements stated within the literature of the Chief Financial Officers (CFO) Act of 1990 (see Chapter II of this thesis for reference).

The fourth and fifth steps are the identification of the necessary data items from the financial statements and their separation from any unusable data within the statements. Using the financial ratio framework reported in Chapter III of this thesis, the vast number of data in each entity's financial statements were filtered down into just those data items necessary to calculate the financial ratios of the framework.

The sixth and final step in the data collection of this thesis is the computation of financial ratios. Using the figures filtered in the previous step, a database of financial ratios for each of the major reporting federal agencies was created. The resulting database of ratios and their composition can be found in Appendix A. In an attempt to facilitate the analysis phase of this thesis, the data base was organized in terms of the same three federal financial reporting objectives discussed in Chapter III of this thesis: Budgetary Integrity, Operating Performance, and Stewardship. Table 4-1 provides a listing of the composition of each ratio in the federal financial ratio framework, along with the source (within the entity's financial statements) of these values.

Ratio	Ratio Calculation	Financial Statement Source
Compliance/Antideficiency Ratio (Budgetary Integrity)	Obligations Incurred / Total Budgetary Resources	Statement of Budgetary Resources
Percentage of Uncovered Liabilities Ratio (Budgetary Integrity)	Total Liabilities Not Covered By Budgetary Resources / Total Liabilities	Statement of Budgetary Resources Balance Sheet
Return on Total Resources (Budgetary Integrity)	Total Outlays / Total Budgetary Resources	Statement of Budgetary Resources
Reliance on Other Sources of Funding Ratio (Budgetary Integrity)	Obligations Incurred-Budget Authority / Budget Authority	Statement of Budgetary Resources
Operating Efficiency Ratio (Operating Performance)	Net Cost of Operations / Service Base	Statement of Changes in Net Position Independent for each Entity
Return on Net Cost (Operating Performance)	Net Results of Operations / Net Cost of Operations	Statement of Changes in Net Position
Return on Appropriated Funds (Operating Performance)	Net Results of Operations / Appropriations Used	Statement of Changes in Net Position
Unassigned Program Cost to Total Cost of Operations (Operating Performance)	Total Cost Not Assigned to Programs / Total Cost of Operations	Statement of Net Cost Statement of Changes in Net Position
Total Asset Maintenance (Stewardship)	Total Assets / Appropriations Used	Balance Sheet Statement of Changes in Net Position
Fixed Assets to Total Assets (Stewardship)	PP&E / Total Assets	Balance Sheet
Inventory to Assets (Stewardship)	Operating Materials & Supplies / Total Assets	Balance Sheet
Depreciation to Total Cost (Stewardship)	Depreciation Expense / Total Cost Operations	Statement of Financing
Capital Investment Ratio (Stewardship)	Change in PP&E / Total Assets	Balance Sheet

Table 4-1: Sources of Federal Financial Ratios

The second phase in this Chapter's methodology is the data analyses phase, which consists of three major steps. The first step is a descriptive analysis and statistical study of the ratios calculated. The objective of this descriptive analysis is to determine the distribution of each ratio, reporting each ratio's mean, median, range, and level of skewness. Outliers will also be reported and discussed. The calculations and results of this step are determined using simple spreadsheet formulas. The goal of this step is to provide a general description of the values for financial ratios exhibited across the federal government agencies.

The second step is a correlation analysis of the financial ratios. The goal of this correlation analysis is to determine relationships between the financial ratios.

The last step of the analysis is an interpretation of the findings and a critique of the financial ratio framework. The goal of this step is to determine and report any pertinent findings from the analyses and to further modify (if needed) the employed Federal Financial Ratio Framework.

C. ANALYSES LIMITATIONS

In attempting to perform any exploratory empirical research, there always exist the possibility of determining very little, if any, usable conclusions from the analyses. Due to the unfortunate fact that the federal financial reporting environment is relatively young and inexperienced, one can argue that there are limitations concerning the credibility of the figures reported by the federal entities. As stated in Chapter I of this thesis, each federal entity must submit audited federal financial reports. Since each entity's statements are audited, it is useful that this thesis include a discussion of the quality of financial reports of the federal entity's to be analyzed. Table 4-2 is a listing of each federal entity and its respective FY98 financial statement's audit opinion.

Agency	FY98 Audit Opinion	Agency	FY98 Audit Opinion
Department of Defense	Disclaimer	Department of the Treasury	Qualified
Department of Commerce	Unqualified/Disclaimer	Department of Veterans Affairs	Qualified
Department of Agriculture	Disclaimer	Agency for International Development	Disclaimer
Department of Education	Disclaimer	Environmental Protection Agency	Unqualified
Department of Energy	Qualified	Federal Emergency Management Agency	Unqualified
Department of Health and Human Services	Qualified	General Services Administration	Unqualified
Department of Housing and Urban Development	Unqualified	National Aeronautics and Space Administration	Unqualified
Department of the Interior	Unqualified	National Science Foundation	Unqualified
Department of Justice	Disclaimer	Nuclear Regulatory Commission	Unqualified
Department of Labor	Unqualified	Office of Personnel Management	Disclaimer
Department of State	Unqualified	Small Business Administration	Unqualified
Department of Transportation	Disclaimer	Social Security Administration	Unqualified

Table 4-2: Federal Entities' Audit Opinions [Ref. 27:pp. 2-3]

The results of the audit opinions on each of entity's financial statements will be discussed more in the correlation analyses section of this chapter. However, it is first important to note that only twelve of the 24 reporting agencies (50%) received unqualified opinions. A detailed discussion of the meaning behind the auditing opinions is beyond the scope of this thesis, but an unqualified opinion means that the financial statements are presented fairly in all material respects. Four of the 24 reporting agencies (17%) received qualified opinions. A qualified opinion is similar to an unqualified opinion, except that it calls attention to some limitation in the audit or to some misstatement that is significant enough to warrant mention but not enough to impair the fairness of the statements as a whole. Seven of the agencies (29%) received disclaimers of opinion. A disclaimer of opinion asserts that the auditors could not obtain sufficient competent evidence to support any opinion. One agency, the Department of Commerce, received an unqualified opinion on its FY98 Balance Sheet, but a disclaimer on its remaining financial statements. [Ref. 28:p. 36]

A second limitation is the lack of complete data to determine values for one of the stewardship ratios, the Capital Investment Ratio. This can be attributed to the inability to obtain FY97 values for the following five entities: Agency for International Development, Department of Commerce, Department of Justice, Department of the Treasury, and the Federal Emergency Management Agency.

One final limitation is the absence of the Office of Personnel Management from the analysis. This is due to the inability of acquiring any financial statements from the agency. Only after online sources and correspondence attempts failed, did it become necessary to exclude this entity from the analyses. In any case, one can note that their FY98 financial statements received a disclaimer of opinion from the auditors.

D. DESCRIPTIVE ANALYSIS

As stated above, the descriptive analysis phase will describe the distribution of each ratio, discussing each ratio's mean, median, range, level of skewness, and outliers. The mean of each ratio is the arithmetic average of the 23 entities. The median of each ratio is the ratio in the middle of the 23 entities. The range of each ratio will help to discuss the variation amongst the 23 analyzed entities. Finally, the level of skewness provides a characterization of the degree of asymmetry of a distribution around its mean. This value can be used to compare each ratio to the other ratios. The calculations and results were determined using simple spreadsheet formulas. The goal is to provide a general description of the values for ratios exhibited across the federal government agencies.

1. Budgetary Integrity Ratios

The goal of the budgetary integrity objective is public accountability for monies raised and expensed through government operations. [Ref. 13:par. 13]

a. *Compliance/Antideficiency*

The first ratio within this category is the Compliance/Antideficiency ratio. This ratio is intended to measure the extent to which the reporting entity obligated their funds as a percentage of Total Budgetary Resources. It describes the relationship between Obligations Incurred, Net and total Budgetary Resources. [Ref. 4:pp. 116-117] Values and statistics for the Compliance/Antideficiency ratio are displayed in Table 4-3. The agencies and values for the ratio are listed in descending order of magnitude in the table, with summary statistics at the bottom of the table. Several observations are noteworthy. The mean is 0.735 and the median is 0.770. This indicates that, on average, federal agencies have obligated about 75% of their budgetary resources.

Note the closeness of the mean and median and the low skewness statistic (-0.914). This indicates that values for this ratio tend to be symmetrically or normally distributed around the average.

Values for the Compliance/Antideficiency ratio range from 0.329 to 0.959. Values of this ratio should fall between 0 and 1, representing the degree to which budgetary resources have been obligated. The range of values here indicated wide differences in obligations behavior across the federal agencies.

While there is a wide range of values there are no outliers, clearly different from the others. Not also that there are both high and low values associated with agencies that had unqualified audit opinions. So these extreme values are not caused by possible invalid data.

Note that no value falls above 1. A value in excess of 1 would suggest that an agency had obligated amounts in excess of its budgetary resources, which would suggest possible violation of antideficiency laws.

b. ***% of Uncovered Liabilities***

The second ratio budgetary integrity ratio is the % of Uncovered Liabilities ratio. This ratio is intended to measure the amount of Liabilities Not Covered by Budgetary Resources that the reporting entity maintains as a percentage of Total Liabilities. It provides an indication of possible future uses of funds. [Ref. 4:p. 117] Statistics for the % of Uncovered Liabilities ratio are displayed in Table 4-4. Various observations are noteworthy.

The mean is 0.338 and the median is 0.236. This indicates that, on average, the reporting entities will need substantial amounts of budget authority in future years to satisfy currently uncovered liabilities, or need to find other sources of funds. The mean and median are somewhat close and the skewness statistic is 0.865. This indicates that values for this ratio tend to be somewhat symmetrical around the average.

Values for the % of Uncovered Liabilities ratio range from 0.001 to 0.997.

Compliance/Antideficiency Ratio	Obligations Incurred / Total Budgetary Resources
National Science Foundation	0.959
National Aeronautics and Space Administration	0.939
Nuclear Regulatory Commission	0.933
Department of Energy	0.910
Department of Commerce	0.910
Department of the Treasury	0.893
Department of State	0.888
Department of Justice	0.859
Department of Education	0.821
General Services Administration	0.803
Agency for International Development	0.791
Environmental Protection Agency	0.770
Department of Agriculture	0.758
Department of Health and Human Services	0.720
Department of Veterans Affairs	0.718
Department of the Interior	0.711
Department of Defense	0.700
Federal Emergency Management Agency	0.657
Department of Transportation	0.554
Department of Housing and Urban Development	0.495
Small Business Administration	0.412
Social Security Administration	0.364
Department of Labor	0.329
MEAN	0.735
MEDIAN	0.770
RANGE	0.631
SKEWNESS	-0.914

Table 4-3: Compliance/Antideficiency Ratio Statistics

Values of this ratio should fall between 0 and 1, representing the percentage of which total liabilities not covered by budgetary resources make up total liabilities. The range of values here indicated wide differences across the federal entities in the degree to which they have uncovered future obligations. For example, about 98% of the Department of Treasury's obligations are not covered. These obligations consist mostly of Federal Debt and Interest Payable. Note also, that there are both high and low values associated with agencies that had unqualified audit opinions. So these extreme values are not caused by possible invalid data.

c. *Return on Total Resources*

The third ratio to be analyzed in the Return on Total Resources. This ratio is intended to be a measure of the return the entity received on Total Budgetary Resources in terms of Total Outlays. Total Outlays provides an accurate figure of the value of goods and services the reporting entity actually paid for during the reporting period. This ratio serves as a measure of the use of funds under the budgetary integrity objective. [Ref. 4:p. 117] Values for the Return on Total Resources are displayed in Table 4-5.

The mean is 0.570 and the median is 0.593. This indicates that, on average, federal agencies received about 50% return on Total Budgetary Resources in terms of Total Outlays.

Note the closeness of the mean and median and the low skewness statistic (-0.242). This indicates that values for this ratio tend to be symmetrically distributed around the arithmetic mean.

Values for the Return on Total Resources ratio range from 0.070 to 0.945. Note the high ratio value for the Nuclear Regulatory Commission. This is attributed to the commission's large amount of outlays. The Nuclear Regulatory Commission incurred obligations in amounts totaling the majority of their Budgetary Resources. Subsequently, they paid off (outlays) the majority of those incurred obligations. In contrast, the General Services Administration has a very low ratio value. This is attributed to the fact that the agency did not choose to pay a large percentage of their incurred obligations. As a result, their outlays are very small. While there is a wide

Percentage of Uncovered Liabilities Ratio	Total Liabilities Not Covered By Budgetary Resources / Total Liabilities
Department of the Treasury	0.977
Department of Veterans Affairs	0.954
Department of Labor	0.865
Department of Energy	0.844
Department of Defense	0.813
Department of Transportation	0.698
Department of Commerce	0.412
National Aeronautics and Space Administration	0.342
Nuclear Regulatory Commission	0.296
Department of Housing and Urban Development	0.291
Department of Justice	0.244
Department of State	0.236
General Services Administration	0.228
Department of the Interior	0.151
Department of Health and Human Services	0.120
Environmental Protection Agency	0.112
Social Security Administration	0.072
National Science Foundation	0.046
Agency for International Development	0.044
Department of Agriculture	0.016
Federal Emergency Management Agency	0.006
Small Business Administration	0.003
Department of Education	0.001
MEAN	0.338
MEDIAN	0.236
RANGE	0.976
SKEWNESS	0.865

Table 4-4: % of Uncovered Liabilities Ratio Statistics

range of values, there are no agencies that appear to be outliers. Note also that there are both high and low values associated with agencies that had unqualified audit opinions. So these extreme values are not caused by possible invalid data.

Return on Total Resources	$\frac{\text{Total Outlays}}{\text{Total Budgetary Resources}}$
Nuclear Regulatory Commission	0.945
National Aeronautics and Space Administration	0.926
Department of the Treasury	0.870
National Science Foundation	0.865
Department of Energy	0.707
Department of Health and Human Services	0.692
Environmental Protection Agency	0.658
Department of Justice	0.637
Department of Commerce	0.635
Department of State	0.607
Department of Education	0.599
Department of Veterans Affairs	0.593
Agency for International Development	0.585
Department of the Interior	0.553
Department of Agriculture	0.544
Department of Defense	0.514
Department of Transportation	0.478
Department of Housing and Urban Development	0.390
Social Security Administration	0.360
Small Business Administration	0.351
Department of Labor	0.294
Federal Emergency Management Agency	0.244
General Services Administration	0.070
MEAN	0.570
MEDIAN	0.593
RANGE	0.875
SKEWNESS	-0.242

Table 4-5: Return on Total Resources Ratio Statistics

d. *Reliance on Other Sources of Funding*

The final ratio within the budgetary integrity objective is the Reliance on Other Sources of Funding Ratio. This ratio is intended to measure the extent to which the reporting entity had to rely on sources of funding other than appropriated funds. It also

Reliance on Other Sources of Funding Ratio	Obligations Incurred-Budget Authority / Budget Authority
General Services Administration	32.000
Small Business Administration	1.788
Federal Emergency Management Agency	1.101
Department of Commerce	0.366
Department of Housing and Urban Development	0.333
Department of Defense	0.318
Department of Justice	0.289
Department of Energy	0.282
Department of Education	0.173
Department of State	0.169
Department of the Interior	0.156
Department of Veterans Affairs	0.133
Environmental Protection Agency	0.069
Agency for International Development	0.069
Department of Agriculture	0.068
National Aeronautics and Space Administration	0.055
National Science Foundation	0.023
Nuclear Regulatory Commission	0.019
Department of the Treasury	0.011
Department of Health and Human Services	0.003
Department of Transportation	-0.099
Department of Labor	-0.166
Social Security Administration	-0.183
MEAN	1.608
MEDIAN	0.133
RANGE	32.183
SKEWNESS	4.764

Table 4-6: Reliance on Other Sources of Funding Ratio Statistics

measures the sources and uses of the funds under the Budgetary Integrity objective. [Ref. 4:pp. 117-118] Values and statistics for this ratio are displayed in Table 4-6.

The mean (1.608) and the median (0.133) are quite different and there is a high skewness value (4.764), so this distribution is not symmetric. All but three agencies have values for this ratio below 0.370, but values for the Reliance on Other Sources of Funding ratio range between –0.183 to 32.000, further supporting the existence of one or more outliers. In these respects, the only principle outlier is the General Services Administration. This entity's unusually large ratio value indicates that their obligations greatly outweigh their budget authority. This is attributed to the fact that the General Services Administration does not rely on appropriations. Three agencies have negative ratio values. This indicates that incurred obligations during the year were in excess of budget authority granted during the year, and is probably the result of incurring obligations against authority from prior years. Note also that there are both high and low values associated with agencies that had unqualified audit opinions. So these extreme values are not caused by possible invalid data.

2. Operating Performance Ratios

The goal of the operating performance objective is to assist users in evaluating the reporting entity's service efforts, costs, and accomplishments. [Ref. 13:par. 122]

a. *Operating Efficiency*

The first ratio within this objective is the Operating Efficiency Ratio. Because this ratio is entity specific, an additionally discussion of this ratio is essential. Descriptive statistics are not relevant with regards to an entity specific ratio. The

Operating Efficiency Ratio is intended to measure the overall operating performance and efficiency of the reporting entity in terms of their Net Cost of Operations and some service base unique to the reporting entity. The service base unique to the reporting entity should be identified in the reporting entity's accountability report. As a result, this ratio is entity-specific. [Ref. 4:p. 118] The only way to properly discuss this ratio is to explain the service base chosen for each reporting entity. However, to do so would involve the development of measures of service bases using information beyond financial statements. As a result, the development of this ratio is beyond the scope of this thesis.

b. *Return on Net Cost*

The second operating performance ratio is the Return on Net Cost. Values and statistics for this ratio are displayed in Table 4-7. This ratio is intended to measure the return the reporting entity received on the net cost they spent on operations in terms of the net results they received from their operations. As a result, it is intended to provide an indication of the reporting entity's service efforts and accomplishments. [Ref. 4:p. 118] This ratio's mean is –0.710 and median is 0.002, indicating that on average the entities received low returns on the net cost they spent on operations.

Values for the Return on Net Cost ratio range from –15.316 to 0.270. Additionally noting the skewness statistic (-4.757) supports the existence of one or more outliers. This ratio's only outlier is the General Services Administration. This is due to a negative Net Cost of Operations, resulting from abnormal revenue values (this is because the General Services Administration does not rely on appropriations). Several other organizations have negative values for the ratio, caused by negative values for the net results of operations. These negative values indicate the inability of an entity's funding sources to cover their net cost of operations. Note also that there are both high and low values associated with agencies that had unqualified audit opinions. So these extreme values are not caused by possible invalid data.

Return on Net Cost	Net Results of Operations / Net Cost of Operations
Department of Labor	0.270
Social Security Administration	0.244
Nuclear Regulatory Commission	0.136
Department of State	0.122
Department of the Interior	0.079
Department of Commerce	0.071
Department of Justice	0.035
National Science Foundation	0.019
Department of Health and Human Services	0.019
Department of the Treasury	0.009
National Aeronautics and Space Administration	0.003
Department of Housing and Urban Development	0.002
Department of Defense	0.001
Federal Emergency Management Agency	-0.018
Department of Transportation	-0.033
Environmental Protection Agency	-0.038
Department of Education	-0.051
Agency for International Development	-0.075
Department of Agriculture	-0.167
Department of Energy	-0.364
Small Business Administration	-0.556
Department of Veterans Affairs	-0.723
General Services Administration	-15.316
MEAN	-0.710
MEDIAN	0.002
RANGE	15.586
SKEWNESS	-4.757

Table 4-7: Return on Net Cost Ratio Statistics

c. *Return on Appropriated Funds*

The third operating performance ratio is the Return on Appropriated Funds. This ratio is intended to measure the return the reporting entity received on their Appropriations Used in terms of their Net Results of Operations. It is intended to

Return on Appropriated Funds	Net Results of Operations / Appropriations Used
Social Security Administration	3.271
General Services Administration	1.413
Department of Labor	1.209
Nuclear Regulatory Commission	0.177
Department of State	0.098
Department of the Interior	0.074
Department of Commerce	0.069
Department of Education	0.054
Department of Health and Human Services	0.042
Department of Justice	0.037
National Science Foundation	0.019
Department of the Treasury	0.008
National Aeronautics and Space Administration	0.003
Department of Housing and Urban Development	0.002
Department of Defense	0.001
Federal Emergency Management Agency	-0.018
Environmental Protection Agency	-0.035
Agency for International Development	-0.084
Department of Transportation	-0.135
Department of Agriculture	-0.203
Small Business Administration	-0.437
Department of Energy	-0.452
Department of Veterans Affairs	-2.595
MEAN	0.109
MEDIAN	0.008
RANGE	5.867
SKEWNESS	0.791

Table 4-8: Return on Appropriated Funds Ratio Statistics

measure of service efforts and accomplishments. [Ref. 4:p. 119] Values and statistics for this ratio are displayed in Table 4-8.

The mean is 0.109 and the median is 0.008. This indicates that on average entities received low returns on the funds appropriated by Congress and used by the entities. Values for the Return on Appropriated Funds ratio range from –2.595 to 3.271, indicating wide differences in net results across the federal agencies. These observations support the existence of possible outliers. There exist four outliers: Department of Veterans Affairs, the Department of Labor, the General Services Administration, and the Social Security Administration. The abnormality of the Department of Veterans Affairs' ratio value is due to their poor Net Results of Operations. The other three outliers' large positive values are attributed to relatively low appropriations.

d. *Unassigned Program Cost to Total Cost of Operations*

The last operating performance ratio of the ratio framework is the Unassigned Program Cost to Total Cost of Operations. This ratio is intended to be a measure of the accuracy to which the reporting entity can capture its costs and assign them to programs. As a result, it can be used as a means of better understanding the cost drivers of the reporting entity. [Ref. 4:p. 119] Values and statistics for this ratio are displayed in Table 4-9.

The mean is 0.036 and the median is 0.001. This indicates that on average entities accurately capture their costs. Values for this ratio range from –0.002 to 0.455, representing fairly wide differences in cost management behavior across the federal agencies. While there is a wide range of values, all but two agencies have values of

0.058 or lower. The Departments of Energy (0.455) and State (0.239) each have values far above the others. Energy for example is unable to assign 45% of its costs to specific programs. The National Aeronautics and Space Administration on the other hand had a negative value (-0.002), due to their negative value for Total Cost Not Assigned to

Unassigned Program Cost to Total Cost of Operations	Total Cost Not Assigned to Programs / Total Cost of Operations
Department of Energy	0.455
Department of State	0.239
Department of the Interior	0.058
Department of Education	0.037
Small Business Administration	0.011
Department of Housing and Urban Development	0.008
Department of Transportation	0.005
Department of the Treasury	0.003
Social Security Administration	0.003
General Services Administration	0.002
Department of Labor	0.002
Department of Veterans Affairs	0.001
Department of Commerce	0.001
Department of Defense	0.000
Department of Justice	0.000
Environmental Protection Agency	0.000
Department of Agriculture	0.000
Agency for International Development	0.000
Federal Emergency Management Agency	0.000
National Science Foundation	0.000
Nuclear Regulatory Commission	0.000
Department of Health and Human Services	0.000
National Aeronautics and Space Administration	-0.002
MEAN	0.036
MEDIAN	0.001
RANGE	0.457
SKEWNESS	3.558

Table 4-9: Unassigned Program Cost to Total Cost of Operations Ratio Statistics

Programs. This is the result of two major factors. The Administration experienced a decrease in Unfunded Expenses and Capitalized Property and Inventory. These two changes exceeded the administration's total Depreciation Expenses. Note that there are both high and low values associated with agencies that had unqualified audit opinions. So these extreme values are not caused by possible invalid data.

3. Stewardship Ratios

The goal of the stewardship objective is based on the government's responsibility for the general welfare of the nation as a going concern. This includes information as to whether or not the reporting entity's financial position has improved or deteriorated, whether future budgetary resources will be sufficient to meet future expenses, and whether the entity's operations have contributed to the nation's current and future well being.

As a result, stewardship measures provide a means of assessing the reporting entity's ability to manage those assets which have been entrusted to it, and how the financial condition of the government and nation has changed as a result of that management. [Ref. 4:p. 112]

a. *Total Asset Maintenance*

The first ratio under the stewardship objective is Total Asset Maintenance. This ratio is intended to be a measure of the level of appropriations used to maintain a given level of assets. As a result, it provides an indication of the reporting entity's ability to manage its assets. [Ref. 4:pp. 119-120] Values and statistics for this ratio are displayed in Table 4-10.

The mean is 7.698 and the median is 3.281. This indicates that on average federal agencies do not need to utilize large amounts of funding to sustain their assets. Values for the Total Asset Maintenance ratio range from 1.085 to 48.738, attesting to

Total Asset Maintenance	Total Assets Appropriations Used
General Services Administration	48.738
Social Security Administration	24.626
Small Business Administration	19.077
Department of the Treasury	14.533
Department of Labor	12.416
Department of Transportation	6.518
Nuclear Regulatory Commission	6.274
Department of Energy	5.809
Department of the Interior	5.715
Federal Emergency Management Agency	3.841
Department of State	3.609
Department of Housing and Urban Development	3.281
Agency for International Development	2.836
Department of Education	2.745
Environmental Protection Agency	2.625
Department of Agriculture	2.613
National Aeronautics and Space Administration	2.139
Department of Defense	2.138
Department of Commerce	2.114
Department of Health and Human Services	1.532
Department of Justice	1.518
National Science Foundation	1.278
Department of Veterans Affairs	1.085
MEAN	7.698
MEDIAN	3.281
RANGE	47.653
SKEWNESS	2.876

Table 4-10: Total Asset Maintenance Ratio Statistics

wide differences in funding utilization behavior across the federal agencies.

Note also the existence of several outliers. The outliers for this ratio are: the Department of Labor, the Department of the Treasury, the General Services Administration, the Small Business Administration, and the Social Security

Fixed Assets to Total Assets	PP&E / Total Assets
General Services Administration	0.723
National Aeronautics and Space Administration	0.710
Department of the Interior	0.343
Department of Veterans Affairs	0.259
Department of State	0.253
Department of Defense	0.213
Department of Transportation	0.210
Department of Energy	0.203
Department of Justice	0.198
Nuclear Regulatory Commission	0.168
Department of Agriculture	0.030
National Science Foundation	0.023
Environmental Protection Agency	0.015
Department of Health and Human Services	0.007
Department of Labor	0.007
Federal Emergency Management Agency	0.003
Agency for International Development	0.002
Department of Commerce	0.001
Department of Education	0.000
Department of the Treasury	0.000
Social Security Administration	0.000
Small Business Administration	0.000
Department of Housing and Urban Development	0.000
MEAN	0.146
MEDIAN	0.023
RANGE	0.723
SKEWNESS	1.826

Table 4-11: Fixed Assets to Total Assets Ratio Statistics

Administration. This is because of their ability to operate without a heavy reliance on appropriations to sustain their assets.

b. *Fixed Assets to Total Assets*

The second stewardship ratio is the Fixed Assets to Total Assets ratio. Values and statistics for this ratio are displayed in Table 4-11. This ratio measures the Fixed Assets of a reporting entity as a percentage of their Total Assets. Therefore, this ratio is an indication of the proportion of assets that are tied up on long-term, relatively illiquid property. [Ref. 4:p. 120]

The mean of this ratio is 0.146 and the median is 0.023, indicating that, on average, entities' management have only a small proportion of their assets in fixed, illiquid form. The difference between these two statistics, along with the skewness statistic 1.826, indicates that values for this ratio tend not to be symmetrical.

Values for the Fixed Assets to Total Assets range from 0.000 to 0.723. Values of this ratio should fall between 0 and 1, representing the degree to which assets are tied up in Plant, Property, and Equipment. The range of values here indicated differences in asset type across the federal agencies. The majority of agencies have very few fixed assets, while a few, particularly the General Services Administration and the National Aeronautics and Space Administration, have very large amounts of their resources devoted to fixed assets. For the National Aeronautics and Space Administration, these assets consist of Operating Materials and Supplies and the following major types of Plant, Property and Equipment: Structures, Facilities, Assets in

Space, Equipment, and Work in Process. For the General Services Administration, these assets consist of primarily Buildings and Motor Vehicles.

There are both high and low values associated with agencies that had unqualified opinions. Therefore, these extreme values are not caused by possible invalid data.

c. *Inventory to Assets*

The third stewardship ratio is the Inventory to Assets ratio. This ratio is a measure of the percentage of Total Assets that is made up of Inventory. Therefore, this ratio is an indication of the level of total assets that are tied up in inventory. [Ref. 4:p. 120] Values and statistics for this ratio are displayed in Table 4-12.

The mean of this ratio is 0.010 and the median is 0.000, indicating that on average, the entities devote little of their resources to inventories.

Values for the Inventory to Assets ratio range from 0.000 to 0.106. Values of this ratio should be between 0 and 1. The small range indicated that there were not wide differences in the behavior of inventory management across federal entities. All but three of the agencies have ratios of 1% or less. Only the Department of Defense (0.106) and the National Aeronautics and Space Administration (0.076) have significant resources devoted to inventories, suggesting that their composition of assets differs from the remaining agencies. Note however, that the Department of Defense received a disclaimer of opinion and is known to have some problems in validly accounting for its assets.

Inventory to Assets	Operating Materials & Supplies / Total Assets
Department of Defense	0.106
National Aeronautics and Space Administration	0.076
Department of Transportation	0.033
Department of Commerce	0.011
Department of Agriculture	0.001
Agency for International Development	0.001
Social Security Administration	0.000
Department of Labor	0.000
General Services Administration	0.000
Department of State	0.000
Department of Justice	0.000
Nuclear Regulatory Commission	0.000
Department of Health and Human Services	0.000
Department of Housing and Urban Development	0.000
Department of the Interior	0.000
Federal Emergency Management Agency	0.000
Department of the Treasury	0.000
National Science Foundation	0.000
Department of Education	0.000
Small Business Administration	0.000
Environmental Protection Agency	0.000
Department of Energy	0.000
Department of Veterans Affairs	0.000
MEAN	0.010
MEDIAN	0.000
RANGE	0.106
SKEWNESS	2.985

Table 4-12: Inventory to Assets Ratio Statistics

d. *Depreciation to Total Cost*

The fourth stewardship ratio is the Depreciation to Total Cost ratio. Statistics for this ratio are displayed in Table 4-13. This ratio is intended to be a measure of the rate at which the reporting entity is depreciating their capitalized assets. Therefore, it provides a measure of both the reporting entity's ability to manage its assets and how

Depreciation to Total Cost	Depreciation Expense / Total Cost Operations
National Aeronautics and Space Administration	0.136
General Services Administration	0.083
Department of Commerce	0.065
Department of Energy	0.064
Department of State	0.033
Department of the Interior	0.033
Department of Defense	0.014
Department of Justice	0.014
Department of Transportation	0.011
Nuclear Regulatory Commission	0.011
Department of Veterans Affairs	0.005
Environmental Protection Agency	0.003
National Science Foundation	0.002
Department of Health and Human Services	0.002
Department of Labor	0.002
Agency for International Development	0.001
Department of the Treasury	0.001
Federal Emergency Management Agency	0.001
Small Business Administration	0.001
Department of Agriculture	0.000
Department of Housing and Urban Development	0.000
Social Security Administration	0.000
Department of Education	0.000
MEAN	0.021
MEDIAN	0.003
RANGE	0.136
SKEWNESS	2.185

Table 4-13: Depreciation to Total Cost Ratio Statistics

the financial condition of the reporting has changed as a result of its management decisions. This ratio can not only be a good measure of the rate at which the reporting entity's assets are depreciating, but also a good indicator of the relative aggressiveness of the reporting entity's accounting policies. [Ref. 4:pp. 120-121].

The mean of this ratio is 0.021 and the median is 0.003, indicating that, on average, depreciation represents a very small proportion of agencies' cost. Values for the Depreciation to Total Cost ratio range from 0.000 to 0.136. Values of this ratio should fall between 0 and 1, representing the degree to which Depreciation Expense makes up the Total Cost of Operations. The small range of values indicate only small differences in the amount of depreciation across the federal agencies. For most agencies, depreciation is a trivial cost. Only for a few, the National Aeronautics and Space Administration, in particular, is depreciation significant. The NASA's relatively larger depreciation cost is due to its abnormally large amount of Fixed Assets.

e. *Capital Investment*

The final stewardship ratio is the Capital Investment Ratio. This ratio is intended to be a measure of the rate at which the reporting entity is investing in capital assets. [Ref. 4:p. 121] Statistics for this ratio are displayed in Table 4-14.

The mean of this ratio is –0.081 and the median is 0.000, which would indicate that on average, the entities are not investing in capital assets at rates that will sustain them, or they are putting off capital investment to future periods. The closeness of these values indicates that this ratio is somewhat symmetrically distributed around the average.

Capital Investment Ratio values range from –1.101 to 0.065, indicating some differences in the capital investment behavior of federal agencies. Negative values indicate a reduction in Plant, Property, and Equipment, while positive values indicate a growth. Two outlier values are present: the Department of Defense (-1.101) and the

National Aeronautics and Space Administration (-0.207). Both are special cases. The Department of Defense's numbers are not yet valid, as indicated in its disclaimer opinion. The National Aeronautics and Space Administration has valid numbers, but had a one

Capital Investment Ratio	Change in PP&E / Total Assets
Department of the Treasury	#VALUE!
Department of Commerce	#VALUE!
Department of Justice	#VALUE!
Agency for International Development	#VALUE!
Federal Emergency Management Agency	#VALUE!
General Services Administration	0.065
Nuclear Regulatory Commission	0.015
Department of Veterans Affairs	0.005
Environmental Protection Agency	0.004
National Science Foundation	0.004
Department of the Interior	0.003
Department of State	0.002
Department of Labor	0.001
Department of Health and Human Services	0.001
Social Security Administration	0.000
Small Business Administration	0.000
Department of Education	0.000
Department of Housing and Urban Development	0.000
Department of Energy	-0.009
Department of Agriculture	-0.049
Department of Transportation	-0.193
National Aeronautics and Space Administration	-0.207
Department of Defense	-1.101
MEAN	-0.081
MEDIAN	0.000
RANGE	1.166
SKEWNESS	-3.808

Table 4-14: Capital Investment Ratio Statistics

time only reduction in Plant, Property, and Equipment during FY98, due to removing mission assets from the Balance Sheet to comply with Federal Accounting and Standards

Advisory Board SSFAS No. 8. These assets are now summarized as supplementary stewardship information within the financial statement's notes.

E. CORRELATION ANALYSIS

The goal of this correlation analysis is to determine relationships between the financial ratios. In an effort to facilitate the discussion of this section, this thesis will consistently reference Appendix B.

Due to the nature of the ratios within the financial ratio framework of this thesis, this analysis will consist of correlation tests using twelve of the financial ratios. The Operating Efficiency ratio under the operating performance objective was not included in the correlation analysis, due to the fact that this ratio is entity specific and therefore not comparable across the different agencies.

The analysis itself was performed using the statistical package *Minitab*. The results provided by the program included not only the correlation value, but additionally the level of confidence associated with each correlation value. Specifically, the program provides the p-value of the correlation. This value is the probability that a particular correlation value could occur by chance, the probability of erroneously concluding a correlation exists when none does. The corresponding confidence level can be found by subtracting the p-value from 1.000.

Before any interpretation can occur, the level of confidence must first be selected. Due to the small number of observations, and the nature of the correlation confidence levels (a relatively high confidence level requirement would reduce the number of significant correlation values), this thesis will choose to discuss as significant those correlation values with confidence levels equal to or greater than 95% (p-value <= 0.05).

The final requirement to be completed prior to the interpretation of results is the number of correlation tests to be performed. The reader will notice that two correlation tests were performed. The first correlation test was performed using the ratio values for the reporting entities. The second correlation test was performed using the rank order of ratio values for the reporting entities. The first test allows the magnitude of the ratio values to affect the correlation, but is affected by outliers and not fully valid when ratio values are not normally distributed. In contrast, the rank order correlations are not influenced by outliers, but also do not reflect the relative magnitude of ratio values. The two tests are conducted to determine if the findings are sensitive to these differences.

Both correlation analyses included all twelve ratios of all 23 entities. The resulting correlation matrices are presented in Appendix B (*Correlation Analyses*). Given the significance level (0.05), the correlation ratio test yielded 13 significant correlations out of a possible 66 pairwise correlations. These observations are highlighted within the correlation matrices in Appendix B. Additionally, the rank order correlation test yielded 10 significant correlations out of a possible 66 pairwise correlations. In an attempt to facilitate a critique of the financial ratio framework, this analysis will be divided into the same twelve ratios mentioned above.

The purpose of the discussion will be to address three questions: First, which are the strongest correlations? second, what may explain the strongest correlations? and third, are ratios correlated with other ratios within the same financial reporting objective category? Recall that the ratios were developed to represent three reporting objectives: Budgetary Integrity, Operating Performance, and Stewardship. Strong correlations between ratios within the same category suggest that the ratios are measuring a similar underlying concept. Strong correlations between ratios in different categories suggest that the three categories in the ratio framework may not be conceptually distinct.

1. Compliance/Antideficiency

The correlation analyses for the Compliance/Antideficiency ratio revealed two significant ratio correlations, and two significant rank order correlations. The correlation statistics for the Compliance/Antideficiency ratio are displayed in Table 4-15. One notable observation is that this ratio correlates in both tests with another Budgetary Integrity ratio, the Return on Total Resources, and these correlations are quite strong. These two ratios are similar in that they relate either obligations or outlays to budgetary resources, so both reflect the degree to which an agency's spending relates to its annual budgetary resources. This result supports the validity of this ratio's placement within the Budgetary Integrity reporting objective.

Compliance/Antideficiency (Budgetary Integrity)	Ratio Correlation	Rank Order Correlation
Return on Total Resources (Budgetary Integrity)	0.689	0.817
Depreciation to Total Cost (Stewardship)	0.427	0.485

Table 4-15: Compliance/Antideficiency Correlation Statistics

2. % of Uncovered Liabilities

The % of Uncovered Liabilities ratio is significantly rank order correlated with one ratio, the Depreciation to Total Cost ratio. However, the weakness of the correlation statistic does not provide sufficient evidence to refute the location of the % of Uncovered

Liabilities ratio within the budgetary integrity reporting objective. The correlation statistics for the % of Uncovered Liabilities are displayed in Table 4-16.

% of Uncovered Liabilities (Budgetary Integrity)	Ratio Correlation	Rank Order Correlation
Depreciation to Total Cost (Stewardship)		0.497

Table 4-16: % of Uncovered Liabilities Correlation Statistics

3. Return on Total Resources

The Return on Total Resources ratio is significantly correlated with the following four ratios: the Compliance/Antideficiency ratio, the Total Asset Maintenance ratio, the Reliance on Other Sources of Funding ratio, and the Return on Net Cost ratio. This ratio is also rank order correlated with the Compliance/Antideficiency ratio and the Total Asset Maintenance ratio. Correlation statistics for the Return on Total Resources ratio are displayed in Table 4-17. Note the strongest correlations is with the Compliance/Antideficiency ratio, discussed previously. The strength of the Budgetary Integrity ratio correlations support the placement of this ratio within that reporting objective.

Return on Total Resources (Budgetary Integrity)	Ratio Correlation	Rank Order Correlation
Compliance/Antideficiency (Budgetary Integrity)	0.689	0.817
Total Asset Maintenance (Stewardship)	-0.578	-0.435
Reliance on Other Sources of Funding (Budgetary Integrity)	-0.516	
Return on Net Cost (Operating Performance)	0.496	

Table 4-17: Return on Total Resources Correlation Statistics

4. Reliance on Other Sources of Funding

The Reliance on Other Sources of Funding Ratio is significantly ratio correlated with the following four ratios: the Return on Net Cost ratio, the Total Asset Maintenance ratio, the Fixed Assets to Total Assets ratio, and the Return on Total Resources ratio. In addition, it is rank order correlated with the Return on Net Cost ratio. Correlation statistics for this ratio are displayed in Table 4-18.

The strongest result is for the correlation of the Reliance on Other Sources of Funding ratio with the Return on Net Cost ratio, an Operating Performance ratio. Looking at the construction of both these ratios, they are both affected by the manner in which agencies finance themselves, through appropriations or other sources.

The three other correlations become insignificant when rank order correlations are conducted. Looking at the raw ratio values, it is clear that these three correlations were due to outliers. The variation of correlations does not support the placement of this ratio within the Budgetary Integrity reporting objective.

Reliance on Other Sources of Funding (Budgetary Integrity)	Ratio Correlation	Rank Order Correlation
Return on Net Cost (Operating Performance)	-0.998	-0.453
Total Asset Maintenance (Stewardship)	0.830	
Fixed Assets to Total Assets (Stewardship)	0.585	
Return on Total Resources (Budgetary Integrity)	-0.516	

Table 4-18: Reliance on Other Sources of Funding Correlation Statistics

5. Return on Net Cost

The Return on Net Cost ratio is ratio correlated with the following three ratios: the Reliance on Other Sources of Funding ratio, the Total Asset Maintenance ratio, and the

Fixed Assets to Total Assets ratio. Rank order correlations are apparent with the Reliance on Other Sources of Funding ratio, and the Return on Appropriated Funds ratio. Correlation statistics for this ratio are displayed in Table 4-19.

The correlation of the Return on Net Cost ratio with the Reliance on Other Sources of Funding ratio is the strongest and, as discussed above, is reflective of the source of agency financing. The correlations with the Total Asset Maintenance ratio and the Fixed Assets to Total Assets ratio is, as above, caused by outliers. The rank order correlation with the Return on Appropriated Funds ratio is strong and understandable: both ratios reflect the Net Results of Operations.

The variation of correlations for the Return on Net Cost ratio does not provide conclusive evidence as to its location within the federal financial reporting objectives. However, the strong correlation with the Reliance on Other Sources of Funding ratio, leads one to question the location of the Return on Net Cost ratio within the Operating Performance reporting objective.

Return on Net Cost (Operating Performance)	Ratio Correlation	Rank Order Correlation
Reliance on Other Sources of Funding (Budgetary Integrity)	-0.998	-0.453
Total Asset Maintenance (Stewardship)	-0.820	
Fixed Assets to Total Assets (Stewardship)	-0.597	
Return on Appropriated Funds (Operating Performance)		0.708

Table 4-19: Return on Net Cost Correlation Statistics

6. Return on Appropriated Funds

The Return on Appropriated Funds ratio is ratio correlated with one ratio, the Total Asset Maintenance ratio, and rank order correlated with two ratios, the Return on

Net Cost ratio, and the Capital Investment ratio. Correlation statistics for the Return on Appropriated Funds ratio are displayed in Table 4-20.

The strongest association is with the Return on Net Cost ratio, which, as just mentioned above, is due to both ratios reflecting the Net Results of Operations. But variation of correlation values does not provide conclusive evidence to support the location of this ratio within the reporting objectives.

Return on Appropriated Funds (Operating Performance)	Ratio Correlation	Rank Order Correlation
Total Asset Maintenance (Stewardship)	0.564	
Return on Net Cost (Operating Performance)		0.708
Capital Investment Ratio (Stewardship)		0.455

Table 4-20: Return on Appropriated Funds Correlation Statistics

7. Unassigned Program Cost to Total Cost of Operations

The Unassigned Program Cost to Total Cost of Operations is significantly rank order correlated with one ratio, the Total Asset Maintenance. The correlation statistics for the Unassigned Program Cost to Total Cost of Operations ratio is displayed in Table 4-21. The weakness of the correlation statistic does not provide conclusive evidence to support or refute the location of the Unassigned Program Cost to Total Cost of Operations ratio within the reporting objectives.

Unassigned Program Cost to Total Cost of Operations (Operating Performance)	Ratio Correlation	Rank Order Correlation
Total Asset Maintenance (Stewardship)		0.483

Table 4-21: Unassigned Program Cost to Total Cost of Operations Correlation Statistics

8. Total Asset Maintenance

The Total Asset Maintenance ratio is significantly ratio correlated with the following four ratios: the Reliance on Other Sources of Funding ratio, the Return on Net Cost ratio, the Return on Total Resources ratio, and the Return on Appropriated Funds ratio. Significantly rank order correlations are with two ratios, the Return on Total Resources ratio, and the Unassigned Program Cost to Total Cost of Operations ratio. Correlation statistics for the Total Asset Maintenance ratio are displayed in Table 4-22.

The first two ratio correlations are strong but disappear in the rank order tests. They are due to outlier values. None of the remaining correlations are particularly strong. Overall, the variation of correlations does not provide sufficient evidence to support the location of this ratio within the reporting objectives.

Total Asset Maintenance (Stewardship)	Ratio Correlation	Rank Order Correlation
Reliance on Other Sources of Funding (Budgetary Integrity)	0.830	
Return on Net Cost (Operating Performance)	-0.820	
Return on Total Resources (Budgetary Integrity)	-0.578	-0.435
Return on Appropriated Funds (Operating Performance)	0.564	
Unassigned Program Cost to Total Cost of Operations (Operating Performance)		0.483

Table 4-22: Total Asset Maintenance Correlation Statistics

9. Fixed Assets to Total Assets

The Fixed Assets to Total Assets ratio is significantly ratio correlated with the following three ratios: the Depreciation to Total Cost ratio, the Return on Net Cost ratio, and the Reliance on Other Sources of Funding ratio. Additionally, it is rank order correlated with the Depreciation to Total Cost ratio. Correlation statistics for the Fixed Assets to Total Assets ratio are displayed in Table 4-23.

Clearly, the noteworthy result here is the strong positive correlation between the Fixed Assets to Total Assets ratio and the Depreciation to Total Cost ratio. Both ratios tend to be affected by the amount of Plant, Property, and Equipment in an agency. PP&E increases Fixed Assets directly and additionally tends to increase depreciation cost. The strength of correlation with the Depreciation to Total Cost ratio (another Stewardship ratio) tends to support the location of this ratio within the Stewardship objective.

Fixed Assets to Total Assets (Stewardship)	Ratio Correlation	Rank Order Correlation
Depreciation to Total Cost (Stewardship)	0.807	0.786
Return on Net Cost (Operating Performance)	-0.597	
Reliance on Other Sources of Funding (Budgetary Integrity)	0.585	

Table 4-23: Fixed Assets to Total Assets Correlation Statistics

10. Inventory to Assets

The Inventory to Assets ratio is significantly ratio and rank order correlated with one ratio, the Capital Investment ratio. Correlation statistics for the Inventory to Assets ratio are displayed in Table 4-24.

While this correlation does appear strong and persistent across the two tests, the meaning of the correlation is difficult to explain. It indicates that agencies which have high inventories tend to have negative growth in assets. A look at the raw values for the ratios suggests that this may be a spurious correlation primarily due to the fact that the agencies with the most inventory (DoD and NASA) happened to have reduced reported assets in FY98.

Inventory to Assets (Stewardship)	Ratio Correlation	Rank Order Correlation
Capital Investment Ratio (Stewardship)	-0.896	-0.477

Table 4-24: Inventory to Assets Correlation Statistics

11. Depreciation to Total Cost

The Depreciation to Total Cost ratio is significantly ratio correlated with two ratios, the Fixed Assets to Total Assets ratio, and the Compliance/Antideficiency ratio. In addition, it is rank order correlated with the % of Uncovered Liabilities ratio. Correlation statistics for the Depreciation to Total Cost ratio are displayed in Table 4-25.

The strong correlation with the Fixed Assets to Total Assets ratio was noted above and is due to the presence of PP&E at agencies. The strongest correlation of this ratio is with another Stewardship ratio. Therefore, there exists some evidence supporting the location of this ratio within the Stewardship objective.

Depreciation to Total Cost (Stewardship)	Ratio Correlation	Rank Order Correlation
Fixed Assets to Total Assets (Stewardship)	0.807	0.786
Compliance/Antideficiency (Budgetary Integrity)	0.427	0.485
% of Uncovered Liabilities (Budgetary Integrity)		0.497

Table 4-25: Depreciation to Total Cost Correlation Statistics

12. Capital Investment

The Capital Investment ratio is significantly ratio correlated with one ratio, the Inventory to Assets ratio. Significant rank order correlations are with the Inventory to Assets ratio, and the Return on Appropriated Funds ratio. Correlation statistics for the Capital Investment ratio are displayed in Table 4-26.

The possible spurious correlation with the Inventory to Assets ratio was discussed above. Therefore, there exists inconclusive evidence supporting the location of this ratio within the Stewardship objective.

Capital Investment Ratio (Stewardship)	Ratio Correlation	Rank Order Correlation
Inventory to Assets (Stewardship)	-0.896	-0.477
Return on Appropriated Funds (Operating Performance)		0.455

Table 4-26: Capital Investment Correlation Statistics

Chapter IV contained the data necessary to perform the analysis phase. It examined the relevant information contained in the collected federal financial statements, developed the necessary database to perform the analysis and resulted in the calculation of the financial ratios for each of the reporting federal entities. In addition, Chapter IV also provided a descriptive and statistical study of the ratios calculated, a correlation of the ratios and a discussion and interpretation of the findings.

Chapter V will provide a summary, conclusions of this thesis, and presents areas for further research.

THIS PAGE IS INTENTIONALLY LEFT BLANK

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

A. SUMMARY

This thesis revealed numerous differences in the financial ratios of federal government agencies and departments as reported in Chief Financial Officer financial statements. In addition, it provided evidence useful for critiquing a prepared financial ratio framework. The analysis will be of primary benefit to those having the responsibility of managing the major federal agencies and departments.

Prior to 1990, the federal government had traditionally prepared financial reports for the use of monitoring and reporting on the nature of federal funding. However, inconsistencies and the overall unreliability of these reports provided the impetus behind the legislation that would force the federal government to adhere to many of the same accounting standards as private businesses. This subsequent legislation called upon the federal government to produce auditable financial statements. These statements are to fully reveal the federal entity's financial position, in the hope of enabling a better understanding of these federal entities, and to assist in resource management.

In an attempt to aid in the management of those major federal entities, a framework for financial ratio analysis was developed in prior research. This was completed with the goal of enabling users to make understandable and relevant comparisons of federal financial reports. The goal of this thesis was to explore the ability of financial ratios to reveal differences in financial condition across government entities and to describe the range and nature of those differences.

This thesis was researched in three phases: literature review, data collection, and data analyses. The literature review phase resulted in a familiarization with both federal financial reporting practices, and financial ratio frameworks. It provided the background review necessary to compliment the data collection phase. The data collection phase secured the data necessary to perform a sufficient analysis. The result was a database of financial ratios, organized within a prepared financial ratio framework. The data analyses phase included both descriptive and correlation analyses. The results of this phase were to determine the distribution of each ratio, the relationships between the financial ratios, and to provide a critique of the financial ratio framework. The literature review phase comprises Chapter II and III while the data collection and data analyses phase comprises Chapter IV.

1. Literature Review

The literature review phase consisted of two primary background reviews: The federal financial reporting environment and financial ratio frameworks. The federal financial reporting environment review described the federal government financial reporting model, by examining the standard setting bodies within the federal government, the recent standard setting legislation, the users and objectives of federal financial reporting, the elements and characteristics of federal accounting, and the form and content of federal financial statements. The information contained within this review provided the necessary foundation for understanding the financial ratio framework explained and reviewed in the financial ratio framework review.

2. Financial Ratio Framework

The financial ratio framework review included a detailed discussion of the methodology behind the development of a framework for federal financial ratios. The financial ratio framework resulted from research performed in "Framework for Financial Ratio Analysis of Audited Federal Financial Reports." [Ref. 4:Ch. V] This review phase included a discussion of the objectives of the federal financial ratio framework, and concluded with a completed financial ratio framework. This financial ratio framework was broken down into the following three financial reporting objectives: Budgetary Integrity, Operating Efficiency, and Stewardship. The resulting framework was employed within the analyses phase of the thesis.

3. Empirical Analyses

The empirical analysis phase of the thesis provided the analytic evidence behind the conclusions to be discussed in the next section of this chapter. This phase began with a discussion of the methodology behind the entire analyses phase. The next step was to discuss the limitations encountered prior to the actual analyses.

The analyses work was primarily broken down into two major sections: Descriptive Analysis and Correlation Analysis. The goal of the descriptive analysis was to provide the distribution of each ratio within the financial ratio framework employed. This analysis was broken down into the same three financial reporting objectives mentioned above. The result was a detailed description of each ratio's mean, median, range, existing outliers, and level of skewness, in an attempt to clarify the differences in financial condition of federal government agencies and departments.

The goal of the correlation phase was to determine relationships between the financial ratios. This phase additionally provided the evidence for a critique of the financial ratio framework. In an effort to validate the credibility of the analysis results, the correlation analysis was completed using two tests. The first correlation test was performed using the ratio values for the reporting entities. The second correlation test was performed using the rank order of ratio values for the reporting entities. The first test allows the magnitude of the ratio values to affect the correlation, but is affected by outliers and not fully valid when ratio values are not normally distributed. In contrast, the rank order correlations are not influenced by outliers, but also do not reflect the relative magnitude of ratio values. The two tests are conducted to determine if the findings are sensitive to these differences.

B. CONCLUSIONS

Due to the unfortunate fact that the federal financial reporting environment is relatively young and inexperienced, there exists limitations as to the credibility of the figures reported by some of the reporting entities. As a result, although several important conclusions can be drawn from the work performed in this thesis, significantly more analyses must take place before any complete conclusions can be drawn as to the value and usefulness of financial ratios constructed from federal financial reports.

1. Federal Financial Reporting

The strongest conclusion within the federal financial reporting environment, is that there exist many differences in the quality of the information reported in federal financial statements. This is due to the current inability of some agencies to provide accurate and complete financial statements. Only half of the federal entities received unqualified opinions from their auditors, but the remaining reporting entities are making strong efforts to improve and comply with all federal financial reporting requirements. The range of condition of financial reporting in the federal government varies, but there exist several departments and agencies who have successfully complied with the financial reporting requirements much faster and more efficiently then other entities. As long as those entities with discrepancies continue to strive to match the reporting practices of those of the successful entities, there should be no reason why the entire federal financial reporting environment should not improve.

2. Descriptive Analysis

The Descriptive Analysis section of Chapter IV of this thesis provided several notable observations and conclusions. In particular, for all ratios (except the Inventory to Assets ratio) there was a wide range of values across the 23 agencies. This is attributed to the conclusion that the ratios do have an ability to reflect differences in operations or financial condition of the agencies. The exception of the Inventory to Assets ratio to this conclusion provides evidence to refute the usefulness of this ratio.

Other conclusions resulted from observing and intepreting values for financial ratios. In particular, there is reason to question the meaningfulness of the following three ratios within the financial ratio framework: the Return on Net Cost ratio, the Return on Appropriated Funds ratio, and the Depreciation to Total Cost ratio.

The Return on Net Cost ratio is intended to measure the return the reporting entity received on the net cost they spent on operations in terms of the net results they received from their operations. As a result, low ratio values should indicate low returns on the cost an entity spent on operations. However, this interpretation of the ratio may be inappropriate. Low or negative values for this ratio are due to the inability of an entity's funding sources to cover their net cost of operations. The ratio tends to reflect financing activities rather than operating performance.

The Return on Appropriated Funds ratio is intended to measure the return the reporting entity received on their Appropriations Used in terms of the Net Results of Operations. As a result, low ratio values should indicate low returns on the funds appropriated by Congress and used by an entity. However, just as with the Return on Net Cost ratio, this interpretation may be inappropriate. Low or negative values are due to the inability of an entity's funding sources to cover their net cost of operations. So this ratio also reflects financing activities, not operating performance.

The Depreciation to Total Cost ratio is intended to measure the rate at which the reporting entity is depreciating its capitalized assets. Instead, it reports about the importance of Depreciation as a component of total cost. An improved method of determining the rate at which the reporting entity is depreciating its capitalized assets, would be to determine the percentage of Plant, Property and Equipment accounted for by the amount of Depreciation.

3. Correlation Analysis

The Correlation Analysis section of Chapter IV of this thesis provided several notable observations and conclusions. The first observation was that there weren't many very high correlations. A conclusion resulting from this observation is that the ratios are distinct. They each measure different aspects of financial condition.

Another observation resulting from the Correlation Analysis was that ratios within the same reporting objective category (Budgetary Integrity, Operating Performance, and Stewardship) are not generally highly correlated. The conclusion resulting from this observation is that those conceptual categories are not single dimensional. If each concept, for example Budgetary Integrity, is valid, then it must be that there are multiple aspects to Budgetary Integrity.

Additionally, the Correlation Analysis yielded significant associations between ratios in different reporting objectives categories. For example, the following ratios were highly correlated with ratios from different reporting objectives: the Reliance on Other Sources of Funding ratio (Budgetary Integrity) with the Return on Net Cost ratio (Operating Performance) and the Total Asset Maintenance ratio (Stewardship), and the Total Asset Maintenance ratio (Stewardship) with the Return on Net Cost ratio (Operating Performance). This evidence does not support the conclusion that the three categories are conceptually distinct.

An overall observation is that the pattern of correlations both within and across the three categories was random. This suggests that the current three categories do not either serve to group ratios which are similar nor bound ratios which are dissimilar. Thus, the conceptual distinctions implied by the three categories may not be valid. In any case, the conclusions resulting from research performed within this thesis point most strongly towards additionally research.

C. AREAS FOR FURTHER STUDY

The fact that fiscal year 1998 statements were the first financial statements (produced by the majority of the reporting entities) to completely comply with the federal financial reporting requirements, additionally support the need for additional research.

1. Trend and Benchmarking Analysis

As each entity continues to improve upon their reporting standards, more analysis must be performed as to the trend of the ratios' behavior over time. Benchmarking analysis involves comparisons between one reporting entity's ratios and those of a related entity (most likely a top performing entity). Additional empirical research could be conducted to determine if trend and benchmarking analyses could be utilized. In particular, more attention could be paid towards evaluation the individual entity's range of financial condition with respect to the financial reporting objectives.

2. Financial Ratio Frameworks

As reporting requirements are altered, or as agencies improve the quality of the financial information reported in their financial statements, additions and/or deletions of ratios from the framework employed in this thesis could be discovered and justified. This could be used using either empirical and/or pragmatic empiricism.

3. Developing Service Base Measures

As stated in Chapter IV of this thesis, the Operating Efficiency Ratio includes some service base unique to the reporting entity. To do so would involve the development of measures of service bases individually for each agency. As a result, the development of this ratio was beyond the scope of this thesis, but represents an opportunity for future research.

THIS PAGE IS INTENTIONALLY LEFT BLANK

APPENDIX A. FINANCIAL RATIO FRAMEWORK DATABASE

BUDGETARY INTEGRITY	Obligations Incurred	Total Budgetary Resources	Compliance / Antideficiency Ratio	Total Liabilities Not Covered By Budgetary Resources	Total Liabilities	% of Uncovered Liabilities Ratio
Agency for International Development	$6,805	$8,602	0.791	$417	$9,436	0.044
Department of Agriculture	$80,127,584	$105,777,004	0.758	$1,679,277	$107,598,214	0.016
Department of Commerce	$6,048,286	$6,644,849	0.910	$930,063	$2,258,822	0.412
Department of Defense	$423,049,039	$604,036,800	0.700	$771,361,413	$948,517,121	0.813
Department of Education	$57,962,169	$70,618,763	0.821	$31,503	$50,517,568	0.001
Department of Energy	$21,921	$24,096	0.910	$194,443	$230,276	0.844
Department of Health and Human Services	$453,678	$629,762	0.720	$5,663	$47,102	0.120
Department of Housing and Urban Development	$43,454	$87,718	0.495	$10,218	$35,157	0.291
Department of Justice	$22,270,747	$25,917,006	0.859	$1,609,611	$6,594,430	0.244
Department of Labor	$35,323,381	$107,511,777	0.329	$6,902,419	$7,976,839	0.865
Department of State	$7,400,865	$8,335,588	0.888	$3,115,481	$13,202,004	0.236
Department of the Interior	$11,437,920	$16,089,417	0.711	$1,600,415	$10,591,533	0.151
Department of the Treasury	$397,514	$445,236	0.893	$5,486,278	$5,617,263	0.977
Department of Transportation	$46,122,245	$83,271,335	0.554	$25,951,201	$37,201,596	0.698
Department of Veterans Affairs	$51,094	$71,128	0.718	$581,384	$609,256	0.954
Environmental Protection Agency	$8,088,093	$10,507,502	0.770	$175,586	$1,574,168	0.112
Federal Emergency Management Agency	$6,023,962	$9,165,733	0.657	$13,422	$2,325,673	0.006
General Services Administration	$13,827	$17,217	0.803	$1,303	$5,722	0.228
National Aeronautics and Space Administration	$14,403,873	$15,347,201	0.939	$1,713,179	$5,010,848	0.342
National Science Foundation	$3,555,993	$3,707,526	0.959	$10,374	$224,949	0.046
Nuclear Regulatory Commission	$490,118,464	$525,299,063	0.933	$32,454,450	$109,601,918	0.296
Small Business Administration	$4,667,379	$11,319,954	0.412	$43,899	$15,886,667	0.003
Social Security Administration	$417,176	$1,146,315	0.364	$3,214	$44,414	0.072

BUDGETARY INTEGRITY					
Total Outlays	Total Budgetary Resources	Return on Total Resources	Obligations Incurred-Budget Authority	Budget Authority	Reliance on Other Sources of Funding Ratio
$5,028	$8,602	0.585	$437	$6,368	0.069
$57,562,213	$105,777,004	0.544	$5,110,729	$75,016,855	0.068
$4,222,580	$6,644,849	0.635	$1,619,440	$4,428,846	0.366
$310,399,478	$604,036,800	0.514	$102,115,600	$320,933,439	0.318
$42,296,789	$70,618,763	0.599	$8,550,695	$49,411,474	0.173
$17,029	$24,096	0.707	$4,818	$17,103	0.282
$435,648	$629,762	0.692	$1,311	$452,367	0.003
$34,171	$87,718	0.390	$10,847	$32,607	0.333
$16,499,404	$25,917,006	0.637	$4,995,753	$17,274,994	0.289
$31,596,371	$107,511,777	0.294	-$7,043,887	$42,367,268	-0.166
$5,059,258	$8,335,588	0.607	$1,072,364	$6,328,501	0.169
$8,902,527	$16,089,417	0.553	$1,541,540	$9,896,380	0.156
$387,548	$445,236	0.870	$4,417	$393,097	0.011
$39,811,362	$83,271,335	0.478	-$5,052,912	$51,175,157	-0.099
$42,209	$71,128	0.593	$5,985	$45,109	0.133
$6,911,606	$10,507,502	0.658	$523,500	$7,564,593	0.069
$2,235,137	$9,165,733	0.244	$3,157,083	$2,866,879	1.101
$1,204	$17,217	0.070	$13,408	$419	32.000
$14,206,207	$15,347,201	0.926	$754,297	$13,649,576	0.055
$3,207,018	$3,707,526	0.865	$78,689	$3,477,304	0.023
$496,441,447	$525,299,063	0.945	$8,993,464	$481,125,000	0.019
$3,968,542	$11,319,954	0.351	$2,993,270	$1,674,109	1.788
$412,580	$1,146,315	0.360	-$93,660	$510,836	-0.183

OPERATING PERFORMANCE

	Net Cost of Operations	Service Base	Operating Efficiency Ratio	Net Results of Operations	Net Cost of Operations	Return on Net Cost
Agency for International Development	$7,178,000,000	$2,720,000,000	2.639	-$537	$7,178	-0.075
Department of Agriculture	$56,620,642,000	2,000,000	28,310.321	-$9,433,751	$56,620,642	-0.167
Department of Commerce	$4,108,533,000	$934,000,000,000	0.004	$291,542	$4,108,533	0.071
Department of Defense	$280,266,330,000	5,300,000	52,880.440	$256,230	$280,266,330	0.001
Department of Education	$34,155,934,000	21,200,000	1,611.129	-$1,735,076	$34,155,934	-0.051
Department of Energy	$20,956,000,000	17,000,000	1,232.706	-$7,626	$20,956	-0.364
Department of Health and Human Services	$346,633,000,000	56,000	6,189,875.000	$6,521	$346,633	0.019
Department of Housing and Urban Development	$31,473,000,000	4,440,000	7,088.514	$73	$31,473	0.002
Department of Justice	$17,178,873,000	121,300	141,623.026	$602,176	$17,178,873	0.035
Department of Labor	$31,238,910,000	137,000,000	228.021	$8,431,889	$31,238,910	0.270
Department of State	$3,913,044,000	18	217,391,333.33 3	$475,518	$3,913,044	0.122
Department of the Interior	$8,304,124,000	429,000,000	19.357	$655,638	$8,304,124	0.079
Department of the Treasury	$384,424,000,000	70,000,000,000	5.492	$3,319	$384,424	0.009
Department of Transportation	$41,046,042,000	10,000,000	4,104.604	-$1,363,559	$41,046,042	-0.033
Department of Veterans Affairs	$152,444,000,000	70,000,000	2,177.771	-$110,256	$152,444	-0.723
Environmental Protection Agency	$6,149,632,000	273	22,526,124.542	-$235,958	$6,149,632	-0.038
Federal Emergency Management Agency	$2,603,392,000	61	42,678,557.377	-$45,689	$2,603,392	-0.018
General Services Administration	-$38,000,000	3,000,000,000	-0.013	$582	-$38	-15.316
National Aeronautics and Space Administration	$14,132,260,000	4,511,353	3,132.599	$35,375	$14,132,260	0.003
National Science Foundation	$3,264,910,000	9,000	362,767.778	$60,832	$3,264,910	0.019
Nuclear Regulatory Commission	$48,838,891	103	474,163.990	$6,638,551	$48,838,891	0.136
Small Business Administration	$655,996,000	47,198	13,898.809	-$364,751	$655,996	-0.556
Social Security Administration	$408,150,000,000	50,000,000	8,163.000	$99,442	$408,150	0.244

OPERATING PERFORMANCE					
Net Results of Operations	Appropriations Used	Return on Appropriated Funds	Total Cost Not Assigned to Programs	Total Cost of Operations	Unassigned Program Cost to Total Cost of Operations
-$537	$6,389	-0.084	$0	$7,360	0.000
-$9,433,751	$46,580,213	-0.203	$9,940	$65,680,612	0.000
$291,542	$4,233,709	0.069	$3,289	$5,566,088	0.001
$256,230	$276,530,484	0.001	$0	$317,371,808	0.000
-$1,735,076	-$32,375,123	0.054	$1,362,070	$37,109,188	0.037
-$7,626	$16,861	-0.452	$13,379	$29,428	0.455
$6,521	$153,618	0.042	$0	$346,704	0.000
$73	$33,974	0.002	$298	$36,347	0.008
$602,176	$16,434,346	0.037	$0	$19,493,815	0.000
$8,431,889	$6,973,484	1.209	$65,367	$33,629,298	0.002
$475,518	$4,863,695	0.098	$1,505,699	$6,299,651	0.239
$655,638	$8,828,050	0.074	$593,129	$10,197,463	0.058
$3,319	$391,964	0.008	$1,093	$393,792	0.003
-$1,363,559	$10,076,703	-0.135	$191,587	$41,973,236	0.005
-$110,256	$42,484	-2.595	$128	$156,105	0.001
-$235,958	$6,788,830	-0.035	$0	$6,829,890	0.000
-$45,689	$2,547,678	-0.018	$0	$3,939,188	0.000
$582	$412	1.413	$19	$11,657	0.002
$35,375	$14,061,658	0.003	-$35,043	$14,847,667	-0.002
$60,832	$3,211,806	0.019	$0	$3,357,268	0.000
$6,638,551	$37,516,139	0.177	$0	$511,176,498	0.000
-$364,751	$834,059	-0.437	$7,113	$667,700	0.011
$99,442	$30,397	3.271	$1,102	$411,340	0.003

STEWARDSHIP	Total Assets	Appropriations Used	Total Asset Maintenance	PP&E	Total Assets	Fixed Assets to Total Assets
Agency for International Development	$18,122	$6,389	2.836	$28	$18,122	0.002
Department of Agriculture	$121,724,521	$46,580,213	2.613	$3,632,659	$121,724,521	0.030
Department of Commerce	$8,949,262	$4,233,709	2.114	$5,902	$8,949,262	0.001
Department of Defense	$591,194,479	$276,530,484	2.138	$126,219,193	$591,194,479	0.213
Department of Education	$88,855,695	$32,375,123	2.745	$0	$88,855,695	0.000
Department of Energy	$97,947	$16,861	5.809	$19,840	$97,947	0.203
Department of Health and Human Services	$235,289	$153,618	1.532	$1,686	$235,289	0.007
Department of Housing and Urban Development	$111,463	$33,974	3.281	$24	$111,463	0.000
Department of Justice	$24,947,469	$16,434,346	1.518	$4,929,081	$24,947,469	0.198
Department of Labor	$86,584,317	$6,973,484	12.416	$646,834	$86,584,317	0.007
Department of State	$17,553,876	$4,863,695	3.609	$4,434,797	$17,553,876	0.253
Department of the Interior	$50,449,569	$8,828,050	5.715	$17,299,757	$50,449,569	0.343
Department of the Treasury	$5,696,351	$391,964	14.533	$1,461	$5,696,351	0.000
Department of Transportation	$65,680,346	$10,076,703	6.518	$13,821,827	$65,680,346	0.210
Department of Veterans Affairs	$46,092	$42,484	1.085	$11,941	$46,092	0.259
Environmental Protection Agency	$17,823,530	$6,788,830	2.625	$273,071	$17,823,530	0.015
Federal Emergency Management Agency	$9,786,646	$2,547,678	3.841	$24,576	$9,786,646	0.003
General Services Administration	$20,080	$412	48.738	$14,520	$20,080	0.723
National Aeronautics and Space Administration	$30,083,913	$14,061,658	2.139	$21,367,659	$30,083,913	0.710
National Science Foundation	$4,105,049	$3,211,806	1.278	$92,546	$4,105,049	0.023
Nuclear Regulatory Commission	$235,366,939	$37,516,139	6.274	$39,432,602	$235,366,939	0.168
Small Business Administration	$15,911,079	$834,059	19.077	$686	$15,911,079	0.000
Social Security Administration	$748,564	$30,397	24.626	$307	$748,564	0.000

STEWARDSHIP								
Operating Materials & Supplies	**Total Assets**	**Inventory to Assets**	**Depreciation Expense**	**Total Cost of Operations**	**Depreciation to Total Cost**	**Change in PP&E**	**Total Assets**	**Capital Investment Ratio**
$27	$18,122	0.001	$6	$7,360	0.001	N/A	$18,122	#VALUE!
$97,865	$121,724,521	0.001	$30,384	$65,680,612	0.000	-$5,950,190	$121,724,521	-0.049
$99,978	$8,949,262	0.011	$361,164	$5,566,088	0.065	N/A	$8,949,262	#VALUE!
$62,473,866	$591,194,479	0.106	$4,444,970	$317,371,808	0.014	-$650,813,623	$591,194,479	-1.101
$0	$88,855,695	0.000	-$10	$37,109,188	0.000	$0	$88,855,695	0.000
$0	$97,947	0.000	$1,875	$29,428	0.064	-$916	$97,947	-0.009
$30	$235,289	0.000	$768	$346,704	0.002	$346	$235,289	0.001
$0	$111,463	0.000	$2	$36,347	0.000	$0	$111,463	0.000
$0	$24,947,469	0.000	$264,338	$19,493,815	0.014	N/A	$24,947,469	#VALUE!
$0	$86,584,317	0.000	$58,873	$33,629,298	0.002	$66,253	$86,584,317	0.001
$180	$17,553,876	0.000	$205,463	$6,299,651	0.033	$35,265	$17,553,876	0.002
$639	$50,449,569	0.000	$335,074	$10,197,463	0.033	$141,515	$50,449,569	0.003
$97	$5,696,351	0.000	$251	$393,792	0.001	N/A	$5,696,351	#VALUE!
$2,135,660	$65,680,346	0.033	$481,537	$41,973,236	0.011	-$12,682,173	$65,680,346	-0.193
$0	$46,092	0.000	$858	$156,105	0.005	$241	$46,092	0.005
$74	$17,823,530	0.000	$23,573	$6,829,890	0.003	$71,913	$17,823,530	0.004
$4,293	$9,786,646	0.000	$2,304	$3,939,188	0.001	N/A	$9,786,646	#VALUE!
$0	$20,080	0.000	$965	$11,657	0.083	$1,299	$20,080	0.065
$2,280,577	$30,083,913	0.076	$2,013,438	$14,847,667	0.136	-$6,225,532	$30,083,913	-0.207
$0	$4,105,049	0.000	$6,363	$3,357,268	0.002	$14,711	$4,105,049	0.004
$0	$235,366,939	0.000	$5,571,440	$511,176,498	0.011	$3,634,033	$235,366,939	0.015
$0	$15,911,079	0.000	$708	$667,700	0.001	-$1,319	$15,911,079	0.000
$0	$748,564	0.000	$132	$411,340	0.000	$6	$748,564	0.000

APPENDIX B. CORRELATION ANALYSES

RATIO TEST	Compliance / Antideficiency Ratio	% of Uncovered Liabilities Ratio	Return on Total Resources	Reliance on Other Sources of Funding Ratio
% of Uncovered Liabilities Ratio	-0.014 0.948			
Return on Total Resources	0.689 0.000	0.131 0.550		
Reliance on Other Sources of Funding Ratio	0.066 0.766	-0.088 0.690	-0.516 0.012	
Return on Net Cost	-0.080 0.715	0.058 0.793	0.496 0.016	-0.998 0.000
Return on Appropriated Funds	-0.348 0.104	-0.283 0.191	-0.346 0.106	0.274 0.207
Unassigned Program Cost to Total Cost of Operations	0.256 0.239	0.235 0.281	0.128 0.560	-0.069 0.754
Total Asset Maintenance	-0.279 0.197	-0.031 0.889	-0.578 0.004	0.830 0.000
Fixed Assets to Total Assets	0.312 0.147	0.145 0.510	-0.002 0.922	0.585 0.003
Inventory to Assets	0.071 0.747	0.312 0.147	0.143 0.514	-0.083 0.705
Depreciation to Total Cost	0.427 0.042	0.116 0.598	0.144 0.514	0.385 0.069
Capital Investment Ratio	0.037 0.866	-0.337 0.116	-0.017 0.939	0.119 0.588

RATIO TEST						
Return on Net Cost	**Return on Appropriated Funds**	**Unassigned Program Cost to Total Cost of Operations**	**Total Asset Maintenance**	**Fixed Assets to Total Assets**	**Inventory to Assets**	**Depreciation to Total Cost**
-0.238 0.275						
0.057 0.798	-0.115 0.601					
-0.820 0.000	0.564 0.005	-0.076 0.731				
-0.597 0.003	-0.010 0.962	0.110 0.616	0.369 0.083			
0.085 0.698	-0.049 0.823	-0.132 0.550	-0.175 0.425	0.400 0.058		
-0.387 0.068	0.048 0.827	0.273 0.208	0.208 0.342	0.807 0.000	0.395 0.062	
-0.123 0.577	0.056 0.801	0.090 0.683	0.185 0.399	-0.146 0.506	-0.896 0.000	-0.055 0.801

RANK ORDER TEST	Compliance/Antideficiency Ratio	% of Uncovered Liabilities Ratio	Return on Total Resources	Reliance on Other Sources of Funding Ratio
% of Uncovered Liabilities Ratio	0.121			
	0.584			
Return on Total Resources	0.817	0.247		
	0.000	0.256		
Reliance on Other Sources of Funding Ratio	0.024	-0.196	-0.315	
	0.914	0.371	0.143	
Return on Net Cost	0.042	0.187	0.223	-0.453
	0.847	0.394	0.306	0.030
Return on Appropriated Funds	0.083	-0.013	-0.029	-0.184
	0.707	0.954	0.897	0.401
Unassigned Program Cost to Total Cost of Operations	-0.257	0.134	-0.311	0.263
	0.237	0.541	0.148	0.226
Total Asset Maintenance	-0.337	0.000	-0.435	-0.061
	0.116	1.000	0.038	0.781
Fixed Assets to Total Assets	0.302	0.328	0.150	0.041
	0.161	0.126	0.494	0.854
Inventory to Assets	-0.074	0.145	-0.185	-0.187
	0.737	0.508	0.399	0.394
Depreciation to Total Cost	0.485	0.497	0.303	0.207
	0.019	0.016	0.159	0.344
Capital Investment Ratio	0.043	-0.086	0.035	-0.071
	0.844	0.697	0.876	0.747

	RANK ORDER TEST					
Return on Net Cost	Return on Appropriate d Funds	Unassigned Program Cost to Total Cost of Operations	Total Asset Maintena nce	Fixed Assets to Total Assets	Inventory to Assets	Depreciati on to Total Cost
0.708						
0.000						
-0.107	0.018					
0.628	0.936					
0.027	0.276	0.483				
0.904	0.203	0.020				
-0.112	0.009	-0.077	-0.185			
0.612	0.968	0.727	0.399			
0.296	0.279	-0.280	0.013	0.194		
0.170	0.198	0.196	0.954	0.376		
0.059	0.120	-0.033	-0.150	0.786	0.266	
0.788	0.587	0.883	0.494	0.000	0.220	
0.159	0.455	0.057	0.132	0.082	-0.477	0.006
0.468	0.029	0.795	0.547	0.710	0.021	0.979

LIST OF REFERENCES

1. United States Constitution.

2. Granof, Michael H., *Government and Not-For-Profit Accounting*, (John Wiley & Sons, Inc., New York, 1998).

3. Wilson, Earl R., Hay, Leon E., and Kattelus, Susan C., *Accounting for Governmental and Nonprofit Entities*, 11th ed., (Irwin McGraw-Hill: Boston, MA, 1999).

4. Brady, Richard T., "Framework for Financial Ratio Analysis of Audited Financial Reports", Thesis, Naval Postgraduate School, December, 1999.

5. U.S. Department of the Treasury, Office of Strategic Planning and Evaluation, "Mission, Goals and Results", [http://www.ustreas.gov./gpra/], September 1999.

6. U.S. Department of the Treasury, "The Duties and Functions of the Treasury Department, its Offices and Bureaus", [http://www.ustreas.gov./opc/opc0042.html], September 1999.

7. Office of Management and Budget, "OMB's Role", [http://www.whitehouse.gov/omb/organizaiotion/role.html], September 1999.

8. Freeman, Robert J., and Shoulders, Craig D., "Government and Non Profit Accounting", (Prentice-Hall Inc., Upper Saddle River, NJ, 1999).

9. Congressional Budget Office, "CBO's Major Responsibilities", [http://www.cbo.gov/respon.shtml], March 2000.

10. Federal Accounting Standards Advisory Board, "FASAB Facts", 1997.

11. Office of Management and Budget, OMB Circular A-134, "Financial Accounting Principles and Standards", May 1993.

12. Federal Accounting Standards Advisory Board, "Charter of the Accounting and Auditing Policy Committee", [http://www.financenet.gov/financenet/fed/aapc/charter.htm], September 1999.

13. Office of Management and Budget, Statement of Federal Financial Accounting Concepts No. 1, "Objectives of Federal Financial Reporting", September 1993.

14. Steinhoff, Jeffrey C., "Challenges of the CFO Act", *The Government Accountants Journal*, (spring, 1991).

15. Public Law 101-576, 101st Congress, "Chief Financial Officers Act of 1990".

16. Buckner, E. Charles, "The Chief Financial Officers Act of 1990: An analysis of its Implementation within the Department of Defense", Thesis, Naval Postgraduate School, December, 1994.

17. Public Law 103-62, 103rd Congress, "Government Performance and Results Act of 1993".

18. Joint Financial Management Improvement Program, "Government Management Reform Act", JFMIP *News*, (fall, 1994).

19. S-2170, 103rd Congress, "Government Management Reform Act of 1994".

20. Public Law 104-208, 104th Congress, Federal Financial Management Improvement Act of 1996".

21. United States General Accounting Office, "GAO Accounting Guide: Basic Topics Relating to Appropriations and Reimbursables", 1990.

22. Office of Management and Budget, Statement of Federal Financial Accounting Standards No. 1, "Accounting for Selected Assets and Liabilities", March 1993.

23. Office of Management and Budget, Statement of Federal Financial Accounting Standards No. 3, "Accounting for Inventory and Related Property", October 1993.

24. Office of Management and Budget, Statement of Federal Financial Accounting Standards No. 6, "Accounting for Plant, Property, & Equipment (PP&E)", November 1995.

25. Office of Management and Budget, Statement of Federal Financial Accounting Standards No. 5, "Accounting for Liabilities of the Federal Government", December 1995.

26. Office of Management and Budget, OMB Bulletin No. 97-01, "Form and Content of Agency Financial Statements", October, 1996.

27. Friel, Brian, "DOT fixes finances; other agencies expected to follow", [http://www.govexec.com/dailyfed/0300/030700b1.htm], 08 March 2000.

28. Fremgen, James M., *An Introduction to Internal Control and Auditing*, September 1999.

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center...2
   8725 John J. Kingman Rd., Ste 0944
   Ft. Belvoir, Virginia 22060-6218

2. Dudley Knox Library..2
   Naval Post Graduate School
   411 Dyer Rd.
   Monterey, California 93943-5101

3. Professor O. Douglas Moses, Code SM/FM.......................................1
   Department of Systems Management
   Naval Postgraduate School
   Monterey, California 93943-5103

4. Professor Shu S. Liao, Code SM/FM...1
   Department of Systems Management
   Naval Postgraduate School
   Monterey, California 93943-5103

5. Ensign Shane P. Kenney...2
   694 Bear Paw Court
   Winter Springs, FL 32708

6. Patrick J. and Rose M. Kenney..1
   694 Bear Paw Court
   Winter Springs, FL 32708