



# NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

---

**MBA PROFESSIONAL REPORT**

---

## **FINANCIAL STATEMENT ANALYSIS, INTERNAL CONTROLS, AND AUDIT READINESS: BEST PRACTICES FOR PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS**

---

**June 2017**

**By: Muhammad Sadiq Malik**

**Advisors: Juanita M. Rendon  
Steven P. Landry**

*Approved for public release. Distribution is unlimited.*

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
<b>1. AGENCY USE ONLY</b> <i>(Leave blank)</i>	<b>2. REPORT DATE</b> June 2017	<b>3. REPORT TYPE AND DATES COVERED</b> MBA professional report		
<b>4. TITLE AND SUBTITLE</b> FINANCIAL STATEMENT ANALYSIS, INTERNAL CONTROLS, AND AUDIT READINESS: BEST PRACTICES FOR PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS			<b>5. FUNDING NUMBERS</b>	
<b>6. AUTHOR(S)</b> Muhammad Sadiq Malik				
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> Naval Postgraduate School Monterey, CA 93943-5000			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>	
<b>9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> N/A			<b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>	
<b>11. SUPPLEMENTARY NOTES</b> 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. IRB number ____N/A____.				
<b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b> Approved for public release. Distribution is unlimited.			<b>12b. DISTRIBUTION CODE</b>	
<b>13. ABSTRACT (maximum 200 words)</b>  Pakistan has the world's sixth-largest standing army, which requires numerous goods and services supplied by contractors to maintain its efficient operation. To ensure the effectiveness of the contract award process, the Pakistan Army financial management officers need further education regarding how to conduct a financial statement analysis on potential contractors. Furthermore, although the Pakistan Army follows its own internal controls and has an audit system, Pakistan Army financial management officers may benefit from the latest research in these areas for better strategic and financial management of the overall military organization.  The purpose of this research is to create a best practices educational guide that includes a framework for the processes of conducting a financial statement analysis of a potential contractor, instituting effective internal controls for an army outfit, and assuring the audit readiness of an army organization that will serve to assist Pakistan Army financial management officers.  This research concludes that the four steps of financial statement analysis should be adopted, including vertical and horizontal trend analysis, ten financial ratios, bankruptcy analysis, and fraud analysis. This research also recommends implementing the Committee of Sponsoring Organizations of the Treadway Commission internal control framework and the U.S. Department of Defense Financial Improvement Audit Readiness strategy. An educational guide is created as a reference for Pakistan Army financial management officers to enhance their knowledge of financial management matters related to financial statement analysis, internal controls, and audit readiness.				
<b>14. SUBJECT TERMS</b> financial statement analysis, financial health of a contractor, financial ratios, bankruptcy, fraud, internal controls, COSO framework, importance and effectiveness of internal controls, U.S. auditing standards, DOD audit readiness, best practices for Pakistan Army			<b>15. NUMBER OF PAGES</b> 177	
			<b>16. PRICE CODE</b>	
<b>17. SECURITY CLASSIFICATION OF REPORT</b> Unclassified	<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b> Unclassified	<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b> Unclassified	<b>20. LIMITATION OF ABSTRACT</b> UU	

THIS PAGE INTENTIONALLY LEFT BLANK

**Approved for public release. Distribution is unlimited.**

**FINANCIAL STATEMENT ANALYSIS, INTERNAL CONTROLS, AND  
AUDIT READINESS: BEST PRACTICES FOR PAKISTAN ARMY  
FINANCIAL MANAGEMENT OFFICERS**

Muhammad Sadiq Malik, Lieutenant Colonel, Pakistan Army

Submitted in partial fulfillment of the requirements for the degree of

**MASTER OF BUSINESS ADMINISTRATION**

from the

**NAVAL POSTGRADUATE SCHOOL  
June 2017**

Approved by: Juanita M. Rendon, PhD, CPA, CFE

Steven P. Landry, PhD, CPA, CMA, CFM, CGMA, CFP®

Don Summers  
Academic Associate  
Graduate School of Business and Public Policy

THIS PAGE INTENTIONALLY LEFT BLANK

# **FINANCIAL STATEMENT ANALYSIS, INTERNAL CONTROLS, AND AUDIT READINESS: BEST PRACTICES FOR PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS**

## **ABSTRACT**

Pakistan has the world's sixth-largest standing army, which requires numerous goods and services supplied by contractors to maintain its efficient operation. To ensure the effectiveness of the contract award process, the Pakistan Army financial management officers need further education regarding how to conduct a financial statement analysis on potential contractors. Furthermore, although the Pakistan Army follows its own internal controls and has an audit system, Pakistan Army financial management officers may benefit from the latest research in these areas for better strategic and financial management of the overall military organization.

The purpose of this research is to create a best practices educational guide that includes a framework for the processes of conducting a financial statement analysis of a potential contractor, instituting effective internal controls for an army outfit, and assuring the audit readiness of an army organization that will serve to assist Pakistan Army financial management officers.

This research concludes that the four steps of financial statement analysis should be adopted, including vertical and horizontal trend analysis, ten financial ratios, bankruptcy analysis, and fraud analysis. This research also recommends implementing the Committee of Sponsoring Organizations of the Treadway Commission internal control framework and the U.S. Department of Defense Financial Improvement Audit Readiness strategy. An educational guide is created as a reference for Pakistan Army financial management officers to enhance their knowledge of financial management matters related to financial statement analysis, internal controls, and audit readiness.

THIS PAGE INTENTIONALLY LEFT BLANK



## TABLE OF CONTENTS

<b>I.</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>A.</b>	<b>BACKGROUND .....</b>	<b>1</b>
<b>B.</b>	<b>IMPORTANCE OF RESEARCH.....</b>	<b>2</b>
<b>C.</b>	<b>PURPOSE OF RESEARCH .....</b>	<b>2</b>
<b>D.</b>	<b>RESEARCH QUESTIONS.....</b>	<b>3</b>
<b>E.</b>	<b>METHODOLOGY .....</b>	<b>3</b>
<b>F.</b>	<b>ORGANIZATION OF REPORT .....</b>	<b>4</b>
<b>G.</b>	<b>SUMMARY .....</b>	<b>4</b>
<b>II.</b>	<b>LITERATURE REVIEW .....</b>	<b>5</b>
<b>A.</b>	<b>INTRODUCTION.....</b>	<b>5</b>
<b>B.</b>	<b>PAKISTANI ACCOUNTING STANDARDS, INTERNAL CONTROLS, AND AUDIT READINESS.....</b>	<b>5</b>
	<b>1. Legal Background of Financial Statement Preparation in Pakistan.....</b>	<b>6</b>
	<b>2. Internal Control System in Pakistan.....</b>	<b>6</b>
	<b>3. Auditability in Pakistan.....</b>	<b>8</b>
<b>C.</b>	<b>AN OVERVIEW OF U.S. PUBLICLY TRADED COMPANIES’ FINANCIAL STATEMENTS.....</b>	<b>11</b>
<b>D.</b>	<b>FINANCIAL ANALYSIS PROCESS FOR A PUBLICLY TRADED COMPANY .....</b>	<b>14</b>
	<b>1. Purpose and Importance of Financial Statement Analysis .....</b>	<b>14</b>
	<b>2. Trend Analysis Process of Financial Statements .....</b>	<b>17</b>
	<b>3. Financial Health Factors .....</b>	<b>19</b>
	<b>4. Ratio Analysis Process.....</b>	<b>22</b>
	<b>5. Five Major Categories of Ratios.....</b>	<b>23</b>
	<b>6. Multivariate Analysis.....</b>	<b>28</b>
	<b>7. Advantages and Disadvantages of Financial Ratios .....</b>	<b>33</b>
<b>E.</b>	<b>COSO INTERNAL CONTROL FRAMEWORK.....</b>	<b>33</b>
	<b>1. COSO Internal Control Framework.....</b>	<b>34</b>
	<b>2. Key Concepts of Internal Controls.....</b>	<b>34</b>
	<b>3. Importance of Internal Controls .....</b>	<b>34</b>
	<b>4. Objectives of Internal Control.....</b>	<b>35</b>
	<b>5. Components of the COSO Internal Control Framework .....</b>	<b>36</b>
	<b>6. Components and Objectives’ Relationship.....</b>	<b>38</b>
	<b>7. Effective Internal Controls.....</b>	<b>39</b>

8.	Personnel Related to an Internal Control Integrated Framework .....	40
9.	Limitations of Internal Controls.....	41
F.	FEDERAL GOVERNMENT INTERNAL CONTROL STANDARDS .....	42
1.	Importance of Governmental Internal Controls.....	43
2.	Key Concepts of Governmental Internal Controls.....	43
3.	Components of the Governmental Internal Control Framework .....	44
4.	Effective Governmental Internal Controls.....	45
G.	AUDIT READINESS.....	46
1.	Importance of Audit Readiness in the Military Organizations .....	47
2.	An Introduction of U.S. Agencies Related to Audit Readiness .....	47
3.	Types of Audits in the Government .....	51
4.	Auditability Aspects Related to Auditors' Professionalism.....	54
5.	Audit Best Practices.....	57
H.	SUMMARY .....	61
III.	METHODOLOGY .....	63
A.	INTRODUCTION.....	63
B.	IDENTIFICATION OF REQUIREMENTS FOR AN EDUCATIONAL GUIDE .....	63
C.	UTILIZATION OF SUITABLE DATA TO SUPPORT THE ARGUMENT.....	63
D.	ANALYSIS PROCESS.....	63
E.	CREATION OF A GUIDE FOR PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS .....	64
F.	SUMMARY .....	64
IV.	ANALYSIS AND RECOMMENDATIONS BASED ON ANALYSIS .....	65
A.	INTRODUCTION.....	65
B.	FINANCIAL STATEMENT ANALYSIS PROCESS.....	65
1.	Trend Analysis of Financial Statements .....	66
2.	Summary of Horizontal and Vertical Trend Analyses Using Percentages .....	69
3.	Financial Health Factors .....	71
4.	Ratio Analysis: Selection of Best Practices.....	72
5.	Bankruptcy Ratio Analysis .....	77
6.	Fraud Ratio Analysis .....	78

C.	INTERNAL CONTROL FRAMEWORK ANALYSIS PROCESS .....	80
1.	Interrelationship among Internal Controls Components .....	83
D.	AUDIT READINESS ANALYSIS PROCESS .....	84
1.	Importance of U.S. Audit Organizations and U.S. Auditing Standards.....	85
2.	Importance of Audit Readiness .....	85
3.	Types of Audits.....	86
4.	Audit Readiness Best Practices.....	86
E.	IMPLICATIONS FOR PAKISTAN .....	90
1.	Financial Statement Analysis Application in Pakistan.....	90
2.	Internal Controls Application in Pakistan .....	90
3.	Audit Readiness Application in Pakistan .....	91
F.	RECOMMENDATIONS BASED ON ANALYSIS .....	91
1.	Financial Analysis Recommendations.....	91
G.	INTERNAL CONTROL RECOMMENDATIONS .....	96
1.	Internal Control Framework for Pakistan Army .....	96
H.	AUDIT READINESS RECOMMENDATIONS.....	97
2.	Audit Strategy .....	98
I.	SUMMARY .....	99
V.	SUMMARY, CONCLUSIONS, AND AREAS FOR FURTHER RESEARCH .....	101
A.	SUMMARY .....	101
B.	CONCLUSION .....	102
C.	RESEARCH QUESTIONS.....	102
D.	AREAS FOR FURTHER RESEARCH.....	106
	APPENDIX A. IFRS APPROVAL STATUS IN PAKISTAN.....	109
	APPENDIX B. EXAMPLES OF PAKISTANI BALANCE SHEET, INCOME STATEMENT, STATEMENT OF CASH FLOW, AND RETAINED EARNINGS .....	111
	APPENDIX C. ORGANIZATION OF PAKISTAN SAI.....	113
	APPENDIX D. PMAD ORGANIZATIONAL SETUP .....	115
	APPENDIX E. EXAMPLES OF U. S. PUBLICLY TRADED COMPANIES' BALANCE SHEET, INCOME STATEMENT, STATEMENT OF CASH FLOW, AND STATEMENT OF RETAINED EARNINGS.....	117

<b>APPENDIX F. FINANCIAL STATEMENT ARTICULATION DIAGRAM .....</b>	<b>119</b>
<b>APPENDIX G. ORGANIZATION OF U.S. DOD OFFICE OF INSPECTOR GENERAL .....</b>	<b>121</b>
<b>APPENDIX H. ORGANIZATION OF U.S. ARMY FINANCIAL MANAGEMENT COMMAND .....</b>	<b>123</b>
<b>APPENDIX I. EDUCATIONAL GUIDE CREATED BY LT. COL. MUHAMMAD SADIQ MALIK .....</b>	<b>125</b>
<b>A. INTRODUCTION.....</b>	<b>125</b>
<b>B. FINANCIAL STATEMENT ANALYSIS FRAMEWORK FOR     PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS ...</b>	<b>125</b>
<b>1. Gathering Financial Data.....</b>	<b>125</b>
<b>2. Trend Analysis of Financial Statements .....</b>	<b>126</b>
<b>3. Summarizing Horizontal and Vertical Analyses of         Financial Statements.....</b>	<b>128</b>
<b>4. Ratio Analysis.....</b>	<b>130</b>
<b>5. Fraud Ratio Analysis .....</b>	<b>132</b>
<b>6. Bankruptcy Analysis.....</b>	<b>133</b>
<b>7. Financial Statement Framework Chart for Pakistan         Army Financial Management Officers .....</b>	<b>134</b>
<b>C. INTERNAL CONTROL FRAMEWORK FOR PAKISTAN     ARMY FINANCIAL MANAGEMENT OFFICERS .....</b>	<b>136</b>
<b>1. Implementation of GAO’s (2005) Six Factors in Pakistan         Army.....</b>	<b>136</b>
<b>2. Interrelationship among Internal Control Components .....</b>	<b>137</b>
<b>D. AUDIT READINESS FRAMEWORK FOR PAKISTAN ARMY     FINANCIAL MANAGEMENT OFFICERS .....</b>	<b>139</b>
<b>1. Getting Ready for Different Types of Audits .....</b>	<b>139</b>
<b>2. Implementation of the Auditability Triangle .....</b>	<b>142</b>
<b>3. Maximizing the Knowledge about Perspectives of         Auditors and Auditees .....</b>	<b>143</b>
<b>LIST OF REFERENCES.....</b>	<b>147</b>
<b>INITIAL DISTRIBUTION LIST .....</b>	<b>157</b>

## LIST OF FIGURES

Figure 1.	Example of a Balance Sheet of a U.S. Company. Source: Walther (2016).....	11
Figure 2.	Example of an Income Statement of a U.S. Company. Source: Walther (2016).....	12
Figure 3.	Example of a Statement of Cash Flow of a U.S. Company. Source: Walther (2016).....	13
Figure 4.	Example of a Statement of Retained Earning of a U.S. Company. Source: Walther (2016).....	14
Figure 5.	Map of Financial Statement Analysis. Source: Temte (2005).....	15
Figure 6.	Users of Financial Statement Analysis and Their Primary Goals and Objectives. Adapted from Temte (2005). ....	16
Figure 7.	Vertical Analysis Example of a Balance Sheet. Source: Accounting Tool (n.d.). ....	18
Figure 8.	Vertical Analysis Example of an Income Statement. Source: Accounting Tool (n.d.).....	18
Figure 9.	Summary of Five Categories of Ratios. Source: Rendon (2016).....	24
Figure 10.	Model of Credit Management Process. Source: Gorczyńska (2010).....	26
Figure 11.	Z-Score Formula to Detect Bankruptcy. Source: Altman (1968). ....	29
Figure 12.	The Failing Company Mode. Source: Blum (1974). ....	30
Figure 13.	M-Score Formula to Detect Fraud. Source: Beneish et al. (2013).....	32
Figure 14.	Explanation of M-Score’s Fraud Ratios. Source: Beneish et al. (2013).....	32
Figure 15.	Relationship of Components and Objectives. Source: COSO (2013) .....	39
Figure 16.	Internal Controls Components with Related Principles. Source: GAO (2014).....	46
Figure 17.	AICPA Professional Ethics: Source: AICPA (n.d.).....	48

Figure 18.	Relationship among Audit Objectives Risk of Material Misstatement and Audit Procedures. Source: Whittington and Pany (2012).....	52
Figure 19.	Stages of an Audit. Source: Whittington and Pany (2012).....	55
Figure 20.	Comparison of an Audit Standards Approach to a Due Diligence Approach. Source: Miller (2015).....	58
Figure 21.	FIAR Tier I and FIAR Tier II. Source: Crouse (2012).....	59
Figure 22.	The FIAR Strategy. Source: Office of the Undersecretary of Defense (2016).....	60
Figure 23.	Auditability Triangle. Source: Rendon and Rendon (2015).....	61
Figure 24.	Z-Score Formula to Detect Bankruptcy. Source: Altman (1968).....	78
Figure 25.	M-score Formula for Fraud Analysis. Source: Beneish et al. (2013).....	79
Figure 26.	Explanation of M-score’s Fraud Ratios. Source: Beneish et al. (2013).....	79
Figure 27.	M-Score Formula for Fraud Analysis. Source: Beneish et al. (2013). ....	132
Figure 28.	Explanation of M-Score’s Fraud Ratios. Source: Beneish et al. (2013).....	133
Figure 29.	Z-Score Formula to Detect Bankruptcy. Source: Altman (1968).....	134
Figure 30.	The Stages of Audit. Source: Whittington and Pany (2012). ....	140
Figure 31.	Relationship among Audit Objectives, Risk of Material Misstatement, and Audit Procedures. Source: Whittington and Pany (2012).....	141
Figure 32.	Auditability Triangle. Source: Rendon and Rendon (2015).....	142

## LIST OF TABLES

Table 1.	Example of Horizontal Analysis. Adapted from Haber (2004).....	19
Table 2.	Balance Sheet: Trend Analysis of Company A and Company B .....	66
Table 3.	Income Statement: Trend Analysis of Company A and B.....	67
Table 4.	Cash Flows: Trend Analysis of Company A and B.....	68
Table 5.	Cash Flows: Trend Analysis of Company A and B.....	69
Table 6.	Horizontal Trend Analysis of the Balance Sheet, the Income Statement, and the Statement of Cash Flow of Company A.....	70
Table 7.	Vertical Trend Analysis of the Balance Sheet, the Income Statement, and the Statement of Cash Flow of Company A.....	71
Table 8.	Categories of Ratios Selected for Financial Ratio Analysis .....	73
Table 9.	Company A Five-Year Financial Statement Ratio Analysis .....	74
Table 10.	Five Years of Z-Score Calculations for Company A.....	78
Table 11.	Five Years of M-Score Calculations for Company A.....	80
Table 12.	Internal Control Template for Pakistan Army Financial Management Officers .....	82
Table 13.	Interrelationship of the Control Environment, the Information and Communication, and the Monitoring Activities of the Internal Control System. Source: COSO (2013).....	83
Table 14.	Interrelationship of the Monitoring Activities, the Control Environment, and Risk Assessment of the Internal Control System. Adapted from COSO (2013).....	84
Table 15.	Auditor’s Framework to Conduct an Audit .....	88
Table 16.	Auditee’s Educational Framework to Prepare for Audits.....	89
Table 17.	Financial Analysis Framework for Pakistan Army Financial Management Officers.....	95
Table 18.	Balance Sheet: Trend Analysis of Company A and Company B .....	126

Table 19.	Income Statement: Trend Analysis of Company A and Company B .....	127
Table 20.	Cash Flows: Trend Analysis of Company A and Company B .....	127
Table 21.	Cash Flows: Trend Analysis of Company A and Company B .....	128
Table 22.	Horizontal Trend Analysis of the Balance Sheet, the Income Statement and the Statement of Cash Flow of Company A.....	129
Table 23.	Vertical Trend Analysis of the Balance Sheet, the Income Statement, and the Statement of Cash Flow of Company A.....	130
Table 24.	Categories of Ratios Selected for Financial Ratio Analysis .....	131
Table 25.	Financial Analysis Framework for Pakistan Army Financial Management Officers.....	135
Table 26.	Internal Control Template for Pakistan Army Financial Management Officers .....	137
Table 27.	Interrelationship of the Control Environment, the Information and Communication, and the Monitoring Activities of the Internal Control System. Source: COSO (2013).....	138
Table 28.	Interrelationship between the Monitoring Activities, the Control Environment, and Risk Assessment of the Internal Control System. Adapted from COSO (2013).....	139
Table 29.	Auditor’s Framework to Conduct an Audit .....	144
Table 30.	Auditee’s Educational Framework to Prepare for Audits.....	145



## LIST OF ACRONYMS AND ABBREVIATIONS

AGP	Auditor General of Pakistan
AICPA	The American Institute of Certified Public Accountants
AQI	Asset Quality Index
CLA	Controller of Local Audit
CMA	Controllers of Military Accounts
COGS	Cost of Goods Sold
COSO	Committee of Sponsoring Organizations of the Treadway Commission
DCMA	Deputy Controllers of Military Accounts
DEPI	Depreciation Index
DMAG	Deputy Military Accountant General
DGDA	Director General Defense Audit (DGDA)
DCLA	Deputy Controller of Local Audit
DSO	Days Sales Outstanding
DSRI	Days' Sales in Receivables Index
DOD	United States Department of Defense
EPS	Earnings per Share
FA	Fixed Assets
FIAR	Financial Improvement Audit Readiness
GAO	Government Accountability Office
GAAP	Generally Accepted Accounting Principles
GAGAS	Generally Accepted Government Auditing Standards
GMI	Gross Margin Index
IG	Inspector General
ISSAI	International Standards of Supreme Audit Institutions
IRFS	International Financial Reporting Standards
LAO	Local Audit Officers
LVGI	Leverage Index
NPM	Net Profit Margin
NPS	Naval Postgraduate School
OMB	Office of Management and Budget

PMAD	Pakistan Military Accounts Department
PP&E	Property, Plant, and Equipment
PCAOB	Public Company Accounting Oversight Board
ROA	Return on Asset
ROE	Return on Equity
SAI	Pakistan's Supreme Audit Institution
SGAI	Selling, General, and Administrative Expense Index
SGI	Sales Growth Index
SECP	Securities and Exchange Commission of Pakistan
TA	Total Assets
TATA	Total Accruals to Total Assets
TIE	The Times Interest Earned
USAFMCOM	U.S. Army Financial Management Command

## **ACKNOWLEDGMENTS**

I would like to thank Allah Almighty for blessing me with wisdom to complete my thesis on three important topics including financial statement analysis, internal controls, and audit readiness. I am also thankful to the Pakistan Army for providing me an opportunity to maximize my knowledge in these topic areas. I would also like to thank Sahibzada Sultan Ahmad Ali, who guided me in selecting this important topic for this research study. My thesis advisors, Dr. Rendon and Dr. Landry, provided all possible guidance to me. I would particularly mention about Dr. Rendon, who despite her busy schedule, provided regular feedback, direction, and thoughtful ideas to complete this lengthy research study. Dr. Rendon provided an environment conducive for the writing of this thesis. Furthermore, I would like to thank my wife and children, who always gave me a ray of hope, love, and peace of mind, for sacrificing their quality time for the duration of this project.

THIS PAGE INTENTIONALLY LEFT BLANK

## **I. INTRODUCTION**

This chapter discusses the background of this research study, the importance of the research, and the purpose of the research as well as the research questions. The methodology and organization of report are also provided. The next section discusses the background of this research.

### **A. BACKGROUND**

Pakistan has the world's sixth-largest standing Army (World atlas, n.d.), which requires a consistent and reliable supply of goods to maintain its operation. Multi-faceted projects related to indigenous production of military hardware and information technology (IT) equipment in particular are growing at a rapid pace in Pakistan (Syed, 2014). Meanwhile, military hardware and IT equipment are still often acquired from international markets such as the United States (Tomkins, 2015), China (Lipin, 2013), Russia (Haider, 2015), and a few European countries. During the purchasing process, Pakistani Army officers involved in recommending a suitable contractor from a particular country may face challenges in analyzing the financial health of a given potential contractor. Thus, for contracts to be awarded more effectively, there is a crucial need to educate all Pakistan Army financial management officers on how to conduct financial statement analyses on potential contractors. Therefore, the Pakistani officers should be educated on financial statement analysis and ratio analysis that will assist them in decision-making during the procurement process.

The internal control system of an organization plays a major role in helping it to deter fraud, such as the fraudulent financial reporting and embezzlement of assets (Whittington & Pany, 2012). An effective and efficient internal control system sets the foundation for audit readiness in an organization. Even though the Pakistan Army has its own internal and external audit system, Pakistani Army officers can learn from the best practices for internal controls and audit readiness as practiced in industry and by the U.S. Department of Defense (DOD). Pakistan needs a more comprehensive internal control

system as well as a better-established audit readiness process to ensure accountability and operational efficiency within the Pakistan Army.

Pakistani Army officers are quite knowledgeable about military professional matters. However, in a management position, they may find it difficult to understand and handle the matters related to financial statement analysis, internal controls, and audit readiness. Based on prior scholarly research, this research formulates a best practices framework educational guide for Pakistan Army financial management officers regarding the financial analysis of a potential contractor, internal controls, and audit readiness. An educational guide created from recent best practices of industry, U.S. DOD, and government agencies will be a valuable document for the future Pakistan Army financial management officers who are awarding contracts, are responsible for internal controls of military organizations, and are preparing their organization for audits.

## **B. IMPORTANCE OF RESEARCH**

One important aspect of this research is that the resulting guide is created as a best practices framework to assist Pakistani Army financial management officers in assessing a potential contractor's financial health before they award any military contract for the purchase of military equipment for operational readiness or any equipment required to be purchased for administrative needs. Another important aspect is to educate officers regarding their understanding of effective internal controls to deter fraud, ultimately saving public money. The final important aspect of this research is to provide guidelines to military officers as they prepare their military outfits to become audit ready. The Pakistan Army financial management officers' education in these fields is important for better strategic management of the Pakistan Army organization as a whole. The following section discusses the purpose of this research as well as the research questions.

## **C. PURPOSE OF RESEARCH**

The purpose of this research is to create a best practices educational guide that includes a framework for the processes of conducting a financial statement analysis of a potential contractor, instituting effective internal controls of an army outfit, and assuring the audit readiness of an army organization that will serve to assist Pakistan Army

financial management officers. This research may assist the Pakistan Army officers to assess the financial health of a potential contractor prior to undertaking the purchase of equipment for military, administrative, or operational needs. This research may also provide guidelines to ensure effective internal controls in order to deter fraud and misappropriations, as well as help to prepare an army organization regarding audit readiness.

#### **D. RESEARCH QUESTIONS**

This study answers the following three research questions:

1. What are the best practices for financial statement analysis to evaluate the financial health of a potential contractor for the Pakistan Army?
2. What best practices are important for effective internal controls that can be used by Pakistan Army financial management officers?
3. What best practices are important to become audit ready that can be used by Pakistani financial management army officers?

The following section discusses the methodology used in this research.

#### **E. METHODOLOGY**

The methodology for this research includes a literature review in the areas of financial statement analysis, internal control, and audit readiness. The data to be utilized in this research includes scholarly articles, Pakistani government websites, U.S. government documents, other documents related to financial statement analysis of a company, the Committee of Sponsoring Organization of the Treadway Commission (COSO) internal control framework best practices, and audit readiness best practices from the U.S. DOD websites. The steps for conducting a financial statement analysis of a company are provided. An educational guide for Pakistani Army financial management officers is also created encompassing best practices regarding financial statement analysis, internal controls, and audit readiness. The following section provides the organization of this report.

## **F. ORGANIZATION OF REPORT**

This research consists of five chapters. Chapter I is an introduction, which provides an overview and presents the research purpose and the research questions. Chapter II encompasses a literature review, including scholarly articles, federal government documents, and other documents regarding financial statement analysis, internal controls, and audit readiness. Chapter III describes the methodology used for this research. Chapter IV provides the analysis and the recommendations based on analysis. Chapter V consists of a summary and conclusion and suggests areas for further research.

## **G. SUMMARY**

Pakistan Army financial management officers' education in the fields of financial statement analysis, internal controls, and audit readiness is important for better strategic management of the Pakistani military organization as a whole. This chapter provided the background and importance for this study as well as identified the research purpose and the three research questions. This chapter also outlined the methodology to address these research questions and provided a brief organization of this report. The next chapter reviews the scholarly literature that contributes to this research study.



## **II. LITERATURE REVIEW**

### **A. INTRODUCTION**

This chapter provides a literature review regarding financial statement analysis, internal controls, and audit readiness. Background information on the Pakistani accounting standards, internal controls, and auditability is provided. An overview of the four most significant U.S. financial statements, including the balance sheet, the statement of cash flows, the income statement, and the statement of retained earnings, are presented. This literature review describes the process of financial statement analysis, including vertical analysis, horizontal analysis, ratio analysis, and multivariate analyses of financial ratios. The latter includes Beneish's M-Score for fraud indicators and Altman's Z-Score regarding bankruptcy.

Furthermore, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework related to internal controls is discussed. The COSO internal control framework provides important aspects related to key concepts, importance, objectives, and components of internal controls. The U.S. federal government internal control standards are also presented. Additionally, this chapter identifies the importance of audit readiness for military organizations and introduces U.S. organizations related to auditability. The types of audits and the U.S. DOD best practices for audit readiness are discussed. The following section discusses an overview of the Pakistani accounting standards, internal controls, and audit readiness.

### **B. PAKISTANI ACCOUNTING STANDARDS, INTERNAL CONTROLS, AND AUDIT READINESS**

This section addresses Pakistani accounting standards and internal controls, as well as audit readiness. The following section presents the legal background of financial statement preparation in Pakistan.

## **1. Legal Background of Financial Statement Preparation in Pakistan**

According to the Institute of Chartered Accountants of Pakistan (Institute of Chartered Accountants of Pakistan [ICAP], 2015), the Securities and Exchange Commission of Pakistan (SECP) was established in 1997 and became operational in 1999. The SECP is the corporate market regulatory authority in Pakistan (ICAP, 2015). The SECP mission is “to develop a fair, efficient and transparent regulatory framework, based on international legal standards and best practices, for the protection of investors and mitigation of systemic risk aimed at fostering growth of a robust corporate sector and broad based capital market in Pakistan” (The Securities and Exchange Commission of Pakistan [SECP], n.d.). Publicly accountable entities include the companies that have filed, or will soon file, their financial statements with the SECP. The SECP states that all of the publicly accountable entities, including listed entities, public entities, and unlisted economically significant entities, must follow the International Financial Reporting Standards (IRFS). Appendix A presents a list of all IFRS indicating whether each has been approved for use in Pakistan (ICAP, 2015). Appendix B shows examples of a Balance Sheet, an Income Statement, a Statement of Cash Flows, and a Statement of Retained Earnings for companies using Pakistani accounting standards (ICAP, 2015). Generally Accepted Accounting Principles (GAAP) are taught in accounting courses offered by the Graduate School of Business and Public Policy (GSBPP) at the Naval Postgraduate School (NPS). Therefore, this research covers only U.S. GAAP-related financial statement analysis.

## **2. Internal Control System in Pakistan**

The internal control system in Pakistan encompasses internal financial audits by the Local Audit Officers (LAO), who are part of a civil component of the Ministry of Defense. An operational audit by the respective formation headquarters oversees the operational fitness of an army organization. The Pakistan Army, through internal audits, evaluates the functioning of the army organizations to identify weaknesses in internal controls that may lead to previously undetected errors, lapses, or fraud incidents. The purpose is not only to identify errors or negligence but also to ensure that the internal

control system is working efficiently as per rules, regulations, and standing operating procedures (SOP). The Pakistan Army's internal control system is based on financial management internal controls and operational efficiency internal controls.

***a. Financial Management Internal Controls of the Pakistan Army***

The Pakistan Army follows zero tolerance policies with regard to financial embezzlement, and strict disciplinary actions including court martial are taken against fraudsters irrespective of rank or status. Severe punishments are the key to deterring fraud in the Pakistan Army, which has a good reputation in terms of financial internal controls locally as well as internationally. Account ledgers are maintained, and accounts are closed on a monthly basis by experienced and knowledgeable unit account officers and their assistants. Funds, store items, and ration items are spent or consumed as per the rules stipulated by the constitution, the rulings by the Military Account General (MAG), and the instructions of the senior military command. A senior military leader may order a surprise inspection to check internal controls and assess accountability. Any fund, store item, or ration item not consumed within a financial year is surrendered to the issuing authority to ensure accountability. The internal control system encompasses procedures to recover funds in case of any misappropriation whether due to fraud or error. Senior and junior Pakistani Army officers, through regular interactive sessions, also guide their subordinates regarding the importance of having effective internal controls.

***b. Operational Efficiency Internal Controls of the Pakistan Army***

The Pakistan Army is a battle-hardened military force that is highly professional. It is well trained, efficiently managed and led, and highly motivated to promote the national security of Pakistan. Designated Pakistani professional officers from the army headquarters (HQ) audit the operational efficiency of subordinate units and formations regularly to assess and review the operational readiness of the units. The Pakistan Army's operational efficiency internal control system includes assessing the efficiency regarding physical fitness, training standards, maintenance of equipment, health of force, morale and motivation, relief and rotation, leave and leisure procedures, discipline issues, accidents by army vehicles, vigilance, and internal security procedures.

Even though the Pakistan Army has a strong internal control system in place, its internal control system can be further improved by incorporating a more complete integrated internal control framework, including internal control objectives, standards, and principles. The Pakistan Army may benefit from applying such best practices that are found in the COSO and U.S. Government Accountability Office (GAO) internal control documents.

### **3. Auditability in Pakistan**

The Auditor General of Pakistan (2016) states that Pakistan's Supreme Audit Institution (SAI) has constitutional authority to ensure the process of promoting transparency in governmental operations. Pakistan's government follows the Westminster model, which is a democratic parliamentary system and has four bodies to exercise control over public resources. The four accountability and financial control institutions include The Parliament of Pakistan, the Principal Accounting Officer, the Auditor General of Pakistan (AGP), and the treasury (AGP, 2016). The Parliament exercises control over public funds through the office of the AGP, enabling the AGP, who heads the Pakistan's SAI, to conduct independent assessments of governmental operations. An organizational chart of the Pakistan SAI is shown in Appendix C (AGP, 2016). The Public Accountants Committee (PAC) is the main institution tasked with ensuring legislative accountability. According to legal mandate, the AGP (2016) submits the audit reports to:

the President and Governors respectively on the accounts of the Federation and Provinces. The President/Governor cause them to be laid before the National/Provincial Assemblies, which in turn refer these reports to the respective Public Accounts Committees. The Principal Accounting Officers are called upon to appear before these Committees to satisfy the public representatives with reference to the observations of the Auditor General made in his reports with regard to the public spending incurred through them. The Public Accounts Committees are required to submit annual reports for the deliberation and consideration of the respective assemblies. (p. 5)

**a. *Pakistan Auditing Standards and Types of Audits***

The AGP (2016) ensures compliance with international auditing standards and formulates the Financial Audit Manuals and 20 guidelines related to auditability of governmental agencies in Pakistan. This manual and the guidelines have been adopted from the International Standards of Supreme Audit Institutions (ISSAI). AGP (2016) ensures revision and updating of auditing standards on a regular basis. The AGP (2016) conducts the following types of audits:

**(1) Financial Attestation Audit**

In a financial attestation type of audit, auditors give an opinion about financial statements and internal controls of all the government agencies in Pakistan.

**(2) Compliance Audit**

A compliance audit encompasses reports on compliance (or noncompliance) with laws, rules, regulations, and prescribed procedures required to be followed by auditees in the management of public funds.

**(3) Performance Audit**

In a performance audit, auditors prepare reports regarding efficiency, effectiveness, and economy in the management of public funds.

**b. *Defense Services Audit Wing–External Audit***

A director general is located both in Karachi and in Rawalpindi. Their responsibilities include audits of Army, Navy, Air Force, Inter-Services Organizations, production of military-related equipment, Director General Military Lands and Cantonment, Military Accounts, and Federal Government Educational Institutions (AGP, 2016).

**c. *Pakistan Military Accounts Department Internal Audit***

The Pakistan Military Accounts Department (PMAD) is headed by the Military Account General and operates under the Ministry of Defense. The PMAD primarily

makes payments to military personnel and is also responsible for internal audits of the military. The PMAD departments include account officers, assistant account officers, auditors, Controllers of Military Accounts (CMA), and Deputy Controllers of Military Accounts (DCMA) (Pakistan Military Accounts Department [PMAD], n.d.). On behalf of the AGP, the defense services audit wing ensures accountability of the PMAD through the scrutiny of financial statement audits prepared by auditors of the PMAD. The Deputy Military Accountant General (DMAG) is the liaison officer between the CMA and Director General Defense Audit (DGDA) for external audits. The PMAD organization is shown in Appendix D.

The Controller of Local Audit (CLA) uses local audit officers (LAOs) to conduct semi-annual financial internal audits of the army units and formations, including audits of numerous stores and cash accounts. LAOs are independent in giving their audit opinions, and they raise audit issues in addition to providing reports. They have their own offices and residential buildings at most of the army cantonments and are independent of the military for their day-to-day functions. Upon culmination of an audit, the LAO discusses observations with the Commanding Officers (CO) of the concerned military unit before sending a copy of the audit report to the Deputy Controller of Local Audit (DCLA) and the audit section of the Controller of Local Audit (PMAD, n.d.).

Even though Pakistan has a sound auditing system to ensure accountability of government resources, its auditing system can be further improved by utilizing U.S. best practices. The Pakistan Army already procures the military hardware and other equipment from U.S. publicly traded companies. Therefore, understanding of U.S. audit readiness and audit standards is very important for Pakistan Army financial management officers. U.S. best practices can also be useful for the Pakistan Army to further improve the audit readiness of its military organization. The next section discusses an overview of U.S. publicly traded companies' financial statements.

**C. AN OVERVIEW OF U.S. PUBLICLY TRADED COMPANIES' FINANCIAL STATEMENTS**

This section gives an overview of the financial statements of publicly traded companies. Sticky, Weil, Schipper, and Francis (2010) identify four principal financial statements that include the balance sheet, the income statement, the statement of cash flows, and the statement of retained earnings.

The balance sheet is a snapshot of the financial position of a company and is comprised of company assets, liabilities, and shareholders' equity (Sticky, Weil, Schipper, & Francis, 2010). An example of a balance sheet of a U.S. company is presented in Figure 1 (Walther, 2016).

<b>QUARTZ CORPORATION</b>			
<b>Balance Sheet</b>			
<b>December 31, 20X9</b>			
<b>Assets</b>		<b>Liabilities</b>	
Cash	\$192,000	Salaries payable	\$ 34,000
Accounts receivable	128,000	Accounts payable	<u>166,000</u>
Inventories	120,000	Total liabilities	\$200,000
Land	300,000	<b>Stockholders' equity</b>	
Building	100,000	Capital stock	\$220,000
Equipment	50,000	Retained earnings	<u>480,000</u>
Other assets	<u>10,000</u>	Total stockholders' equity	<u>700,000</u>
Total assets	<u>\$900,000</u>	Total liabilities and equity	<u>\$900,000</u>

Figure 1. Example of a Balance Sheet of a U.S. Company.  
Source: Walther (2016).

An income statement gives details of the profits or losses of a company. Net income, which is the net earnings after subtracting the cost of doing business from total revenue, is found on the income statement (Stickney et al., 2010). Sales activity, also

known as sales revenue, is found on the income statement. An example of an income statement of a U.S. company is presented in Figure 2 (Walther, 2016).

<b>QUARTZ CORPORATION</b> <b>Income Statement</b> <b>For the Year Ending December 31, 20X9</b>		
<b>Revenues</b>		
Services to customers	\$750,000	
Interest revenue	<u>15,000</u>	
Total revenues		\$765,000
<b>Expenses</b>		
Salaries	\$235,000	
Rent	115,000	
Other operating expenses	<u>300,000</u>	
Total expenses		<u>650,000</u>
<b>Net income</b>		<u><u>\$115,000</u></u>

Figure 2. Example of an Income Statement of a U.S. Company.  
Source: Walther (2016).

The statement of cash flows represents cash outflows and cash inflows. It has three sections, which include the operating activities, investing activities, and financing activities sections that capture the cash economic events of a company (Sticky et al., 2010). Averkamp (2016) notes that in the operating activities section, the accrual basis net income is reconciled to the cash basis of accounting. The investing activities section shows the long-term investing economic events that are related to the selling and buying of long-term assets as well as investments. The financing activities section shows economic events that are related to creditors or shareholders including principal loan payments, dividends, and long-term loans (Averkamp, 2016). An example of a statement of cash flows is shown in Figure 3 (Walther, 2016).



<b>QUARTZ CORPORATION</b>		
<b>Statement of Cash Flows</b>		
<b>For the Year Ending December 31, 20X9</b>		
<b>Operating activities</b>		
Cash received from customers	\$ 720,000	
Cash received for interest	15,000	
Cash paid for salaries	(240,000)	
Cash paid for rent	(115,000)	
Cash paid for other items	<u>(300,000)</u>	
Cash provided by operating activities		\$ 80,000
<b>Investing activities</b>		
Purchase of land		(250,000)
<b>Financing activities</b>		
Payment of dividends		<u>(35,000)</u>
<b>Decrease in cash</b>		<b>\$(205,000)</b>
<b>Cash, January 1</b>		<u>397,000</u>
<b>Cash, December 31</b>		<u><b>\$ 192,000</b></u>

Figure 3. Example of a Statement of Cash Flow of a U.S. Company.  
Source: Walther (2016).

The statement of retained earnings reports dividend distributions and accumulated earnings. To calculate the retained earnings of a company, the retained earnings of the previous period and the net income of the current period are added together, and then dividends distributed to the shareholders are subtracted (Nurnberg, 2001). An example of a statement of retained earnings of a U.S. company is presented in Figure 4 (Walther, 2016).

<b>QUARTZ CORPORATION</b>	
<b>Statement of Retained Earnings</b>	
<b>For the Year Ending December 31, 20X9</b>	
Retained earnings - January 1, 20X9	\$400,000
Plus: Net income	<u>115,000</u>
	\$515,000
Less: Dividends	<u>35,000</u>
Retained earnings - December 31, 20X9	<u><u>\$480,000</u></u>

Figure 4. Example of a Statement of Retained Earning of a U.S. Company.  
Source: Walther (2016).

Examples of all of the financial statements using U.S. GAAP are shown in Appendix E (Walther, 2016). A Financial Statement Articulation Diagram illustrating how all the financial statements are interrelated is shown in Appendix F (“Financial Statement Analysis (FSA) Demystified,” n.d.). The following section discusses a financial statement analysis process for a publicly traded company.

#### **D. FINANCIAL ANALYSIS PROCESS FOR A PUBLICLY TRADED COMPANY**

This section presents the financial statement analysis process used to determine the financial health of a publicly traded company. The financial statement analysis process includes the purpose and importance of financial statements analysis; a trend analysis process; an analysis of financial health factors; a financial ratio analysis process, including five categories of ratios; a multivariate analysis, including bankruptcy and fraud analysis; and an analysis of the advantages and disadvantages of financial ratios.

##### **1. Purpose and Importance of Financial Statement Analysis**

While describing the analysis process, Temte (2005) elaborates that the end-user must understand the purpose of financial statement analysis. The first step of the analysis process identifies the users and potential users who may include investors, management,

vendors, or creditors. First, the audience, end-user, and objectives must be identified, before the analytical tools are applied to financial information for analysis of a company (Temte, 2005). Examples of the audience, goals or objectives, sources of information, analytical tools, and financial position are shown in Figure 5. For example, management’s goal is efficiency, and the source of information is the management discussion section of a company’s annual report. The management uses cash flow projections as its analytical tool to assess the profitability of its company.

<i>Step 1</i>	<i>Step 2</i>	<i>Step 3</i>	<i>Step 4</i>	<i>Step 5</i>
<i>Audience</i>	<i>Goals or Objectives</i>	<i>Sources of Information</i>	<i>Analytical Tools</i>	<i>Financial position</i>
Investors	Valuation	Financial statements (annual report or 10-K)	Common-size financial statements	Valuation
Creditors	Ability to pay debt	Footnotes	Ratio Analysis	Liquidity
Management	Efficiency	Management discussion	Cash flow projections	Profitability
		Other industry data		Solvency

Figure 5. Map of Financial Statement Analysis. Source: Temte (2005).

The end-users’ primary goals and objectives are illustrated in Figure 6 (Temte, 2005). For example, the primary goal of creditors is the client company’s ability to pay its debts to the creditors, so they are interested in the liquidity and solvency of the client company.

<i>User of Financial Statement Analysis</i>	<i>Primary Goal</i>	<i>Objectives</i>
Equity investors	Valuation	Profitability Risk analysis Growth analysis
Creditors	Ability to repay debt	Liquidity Solvency
Management	Efficiency	Profitability Solvency Operating performance

Figure 6. Users of Financial Statement Analysis and Their Primary Goals and Objectives. Adapted from Temte (2005).

The end-users of financial statement data need to assess the financial strength of a company before undertaking any business decision. A financial health analysis can help determine the potential of a company in meeting creditors' claims and the current business conditions, including their financial statement assertions (Kennedy & McMullen, 1973). For publicly traded companies, financial data is readily available at the Securities and Exchange Commission (SEC) website and the companies' websites, which provide their annual reports. This data can also be found online on the Mergent website, which is a database of companies' financial information (Mergent, n.d.), and on Reuters' website, where industry averages for publicly traded companies are available (Reuters, n.d.).

For privately held companies, though, financial data is not publicly available. Therefore, business decision-makers or contracting officers in the military must ask the business owners of a potential private contractor to present financial statements including footnotes and tax returns for the past three to five years in order to conduct a financial analysis of the company (Entrepreneur Magazine, 2015). Financial statement analysis can be used to assist the end-user in assessing a potential contractor's financial health before awarding any military contract for the purchase of military equipment for operational readiness or any equipment required to be purchased for administrative needs.

## **2. Trend Analysis Process of Financial Statements**

A trend analysis of financial statements provides a foundation for evaluating and interpreting a company's standing in business and industry (Theuri, 2002). Kennedy and McMullen (1973) state that a comparative analysis compares one financial statement with a financial statement of another period. The end-users benefit from a comparative analysis because the financial statements provide financial data and operational trends during different years (Kennedy and McMullen, 1973). Trend analysis can include vertical trend analysis and horizontal trend analysis, which are explained in the following sections.

### ***a. Vertical Trend Analysis***

Winicur (1993) suggests that vertical analysis is important in order to know the relationship between accounting items of a financial statement. The end-user should consider revenues and total assets as 100%, and all other items of the income statement and the balance sheet are compared in terms of percentage of revenue and total assets, respectively (Winicur, 1993). Usually, vertical analysis is for a single period; however, it also represents a picture of timeline analysis to see relative changes in the accounting periods. For example, if the cost of goods sold (COGS) of a company remained at 30% of sales in the previous few years, then in the current year, it was 60% of sales, that would raise red flags. Vertical analysis also provides proportionate information about a company's financial health, and the end-user can also compare companies within the industry (Kennedy & McMullen, 1973). Vertical analysis of the income statement can also identify fluctuations in the expenses. Usually small expenses are not worthy of consideration during decision-making by management. In the balance sheet, an end-user normally uses total assets as the denominator in percentage calculations. An example of a balance sheet vertical analysis using total assets as the denominator is presented in Figure 7 (Accounting Tool, n.d.).

	<b>\$ Totals</b>	<b>Percent</b>
Cash	\$100,000	10%
Accounts receivable	350,000	35%
Inventory	<u>150,000</u>	<u>15%</u>
Total current assets	600,000	60%
Fixed assets	<u>400,000</u>	<u>40%</u>
<b>Total assets</b>	<b>\$1,000,000</b>	<b>100%</b>
Accounts payable	\$180,000	18%
Accrued liabilities	<u>70,000</u>	<u>7%</u>
Total current liabilities	250,000	25%
Notes payable	<u>300,000</u>	<u>30%</u>
Total liabilities	550,000	55%
Capital stock	200,000	20%
Retained earnings	<u>250,000</u>	<u>25%</u>
Total equity	450,000	45%
Total liabilities and equity	<b>\$1,000,000</b>	<b>100%</b>

Figure 7. Vertical Analysis Example of a Balance Sheet.  
Source: Accounting Tool (n.d.).

An example of an income statement vertical analysis using sales as the denominator is presented in Figure 8 (Accounting Tool, n.d.).

	<b>\$ Totals</b>	<b>Percent</b>
Sales	\$1,000,000	100%
Cost of goods sold	<u>400,000</u>	<u>40%</u>
Gross margin	600,000	60%
Salaries and wages	250,000	25%
Office rent	50,000	5%
Supplies	10,000	1%
Utilities	20,000	2%
Other expenses	90,000	9%
Total expenses	<u>420,000</u>	<u>42%</u>
Net profit	<u>180,000</u>	<u>18%</u>

Figure 8. Vertical Analysis Example of an Income Statement.  
Source: Accounting Tool (n.d.).

***b. Horizontal Trend Analysis***

Horizontal analysis is a comparative analysis that encompasses trends over different years and provides information related to the growth or decline of a company's account values in the financial statements (Winicur, 1993). Horizontal analysis presents trends and ratios of a company during a specific period of time (Whittington & Pany, 2012). The end-user selects a base year and all items of different years are compared in terms of a percentage to the base year (Kennedy & McMullen, 1973). Trends are

compared with other relevant trends. As illustrated in Table 1, the COGS and sales are interrelated; therefore, if sales increase, COGS should also increase (Grant et al., 2016; Haber, 2004). An example of horizontal analysis using 2000 as the base year is presented in Table 1 (Haber, 2004).

Table 1. Example of Horizontal Analysis. Adapted from Haber (2004).

	2000	2001	Change	2002	Change
<b>Sales</b>	1,200,000	1,500,000	25.0%	1,850,000	23.0%
<b>COGS</b>	200,000	300,000	50.0%	350,000	16.7%
<b>Salaries</b>	600,000	700,000	16.7%	800,000	14.3%
<b>Rent</b>	110,000	120,000	9.1%	140,000	16.7%
<b>Supplies</b>	65,000	70,000	7.7%	72,000	2.9%
<b>Telephone</b>	50,000	55,000	10.0%	65,000	18.2%
<b>Other Expenses</b>	8,000	12,000	50.0%	15,000	25.0%
<b>Net Income</b>	167,000	243,000	45.5%	408,000	67.9%

### 3. Financial Health Factors

In addition to horizontal trend analysis and vertical trend analysis, prior research indicates that there are seven factors that should be taken into consideration in a financial statement analysis (Kennedy & McMullen: 1973; Friedman, 2000; Entrepreneur Magazine, 2015; Grant, Ingram & Deas, 2016). An evaluation of the following seven factors will assist the decision-makers in determining the financial strengths and weaknesses of a company.

**a.        *Inventory***

Inventory is a current asset found on the balance sheet. Brealey, Myers, and Allen (2014) state that, for a manufacturing company, inventory may be raw materials, work in-progress, or finished products. For a retail company, inventory, also called merchandise inventory, represents the goods that are purchased by a company for resale (Brealey, et al., 2014). Inventory represents one of the most important current assets of a company's total assets. A higher inventory turnover indicates more sales are generated, resulting in subsequent earnings for the company and eventually a higher shareholder value (Stickney et al., 2010). A lower inventory turnover results in surplus inventory. Surplus inventory ties up company money and may be an indication that goods are, or may be becoming, obsolete. Surplus inventory may also signal that disappointed consumers are returning the products or the company may be experiencing a lag between orders and delivery (Entrepreneur Magazine, 2015).

**b.        *Accounts Receivable***

Accounts receivable are current assets found on the balance sheet. Accounts receivable are the unpaid amount that the company is owed from its customers as a result of selling goods on account (Stickney et al., 2010). Wodynska (2008) states that the “companies try to limit credit risk by securing their trade transactions in accordance with their credit policy that determines in some way the choice of trade transaction security tools” (p. 111). Uncollected accounts receivable may lead a company to obtain unnecessary loans to meet day-to-day expenses to operate the business, which could affect the company's growth. Therefore, an analysis of cash collection schedules, aging of receivables, credit policies, and accounts receivable turnovers are critical (Entrepreneur Magazine, 2015). Efficient accounts receivable management includes good credit policy, control on accounts receivable, and an efficient accounts receivable debt collection policy (Piechowicz, 2006).

**c.        *Net Income***

Net income, which is the net earnings after subtracting the cost of doing business from total revenue, is found on the income statement (Stickney et al., 2010). Net income



indicates how profitable a company is over a period of years. If a company's expenses are more than the revenue for an extended period of years, this may lead to an overall loss and no profits earned by the company (Friedman, 2000).

***d. Working Capital***

According to Stickney et al. (2010) and Brealey et al. (2014), working capital is the difference between a company's current assets and its current liabilities. Current assets include a company's cash, inventory, and accounts receivable, and current liabilities include a company accounts payable, short-term debt, and current long-term debt (Friedman, 2000). The company utilizes positive working capital to meet short-term debt requirements to stay financially viable (U.S. Small Business Administration, n.d.). Working capital management (WCM) is important because it adds value to the company's growth and shareholders' equity. Therefore, WCM is a vital element in a company's financial management strategy (Tsagem, Aripin, & Ishak, 2015).

***e. Sales Activity***

Sales activity, also known as sales revenue, is found on the income statement. Friedman (2000) states that a company generally uses either the cash basis of accounting or the accrual basis of accounting when recording sales activity. The accrual basis of accounting method recognizes revenue when earned and expenses when incurred, whereas the cash basis of accounting method recognizes revenue when cash is received and expenses when cash is paid (Friedman, 2000). Imam and Ali (2014) suggest four sales activity management tools, which include instructions, coaching, compliance, and time management. Sales performance is achieved by sales skills, efficiency of personnel, knowledge of product, inventory management skills, and processing customer needs (Imam & Ali, 2014).

***f. Fixed Assets***

The fixed assets, which are found on the balance sheet, are long-term tangible property, plant, and equipment (PP&E) (Bobber, 2015). A company utilizes fixed assets to generate sales, which in turn may result in net income. Generally, fixed assets such as

buildings, factories, land, machinery, transportation vehicles, and equipment cannot be converted to cash quickly (Stickney et al., 2010). Methods of recording assets, disposing of assets, and depreciating assets need to be assessed before doing business with a company (Stickney et al., 2010). A company should handle fixed asset transactions very carefully to ensure proper financial reporting, which may help in an accurate valuation of fixed assets (Bobber, 2015). A company's heavy investment in fixed assets with unused equipment may indicate a declining demand of production or a miscalculation of the fixed asset requirements (Entrepreneur Magazine, 2015).

***g. Operating Environments***

The operating environment and the corporate culture are very important factors to consider when analyzing the financial health of a company (Entrepreneur Magazine, 2015). Factors, such as the political environments of the countries involved, economic backgrounds, and customer base, play vital roles in evaluating the financial health of a company (Entrepreneur Magazine, 2015). These factors may provide answers to questions related to a long-standing customer base. These financial health factors relate to the financial statement ratio analysis process, which is discussed in the next section.

**4. Ratio Analysis Process**

The focus of this research is limited to the process of ratio analysis. Therefore, this research study will not be conducting a ratio analysis on a real company. Numerous ratios are available for the end-user to use in financial ratio analysis to assess the financial health of a company, but prior research indicates that some ratios are more important than others (Winicur, 1993; Davis & Peles, 1993; Brigham & Houston, 2007; Williams, Haka, Bettner, & Carcello, 2008; Stickney et al., 2010; Rendon, 2016; Grant et al., 2016). The financial ratios are interrelated between the various types of financial data of a single financial statement or between different financial statements (Winicur, 1993). The statistics within ratios have specific economic and functional relationships. For example, the numerator and the denominator have such a relationship (Lev, 1974). Ratio analysis is a tool that can help to quickly evaluate a company's financial position and profitability, express trend analysis within a company over a period of years, and

compare the financial strength of different companies (Williams et al., 2008). Different types of ratios can be used to determine profitability, liquidity, long-term solvency, and market value (Winicur, 1993). Ratios standardize numbers, facilitate comparison, and highlight the weakness and strengths of a company (Brigham & Houston, 2007). There are five major categories of ratios, which are discussed in the next section.

## **5. Five Major Categories of Ratios**

The five major categories of ratio that can help assess the financial health of a company include liquidity (solvency) ratios, asset management ratios, debt management ratios, profitability ratios, and market value ratios (Brigham & Houston, 2007). A summary of these five categories of ratios, consisting of several ratios within each category along with the formulas are represented in Figure 9 (Rendon, 2016).

## Five Major Categories Of Ratios

### SUMMARY OF RATIOS

Liquidity	Asset Management	Debt Management	Profitability	Market Value
<b>Current Ratio</b> (Working Capital Ratio) (Current Assets/Current Liabilities)	<b>Accounts Receivable Turnover</b> (Sales Revenue/Accounts Receivable)	<b>Debt/Equity</b> (Total Liabilities/Total Stockholders' Equity)	<b>Gross Profit Margin</b> (Gross Profit/Sales Revenue)	<b>Earnings Per Share (EPS)</b> (Net Earnings/Average Shares Outstanding)
<b>Quick Ratio (Acid Test Ratio)</b> (CA-Inventory/CL)	<b>Inventory Turnover</b> (Cost of Goods Sold/Inventory)	<b>Debt/Assets (Debt Ratio)</b> (Total Liabilities/Total Assets)	<b>Operating Profit Margin</b> (Operating Profit/Sales Revenue)	<b>Price/ Earnings (PE)</b> (Market Price of Common Stock/EPS)
<b>Cash Flow Liquidity Ratio</b> (Cash Flow From Operating Activities/Current Liabilities)	<b>Fixed Asset Turnover</b> (Sales Revenue/Fixed Assets)	<b>Times Interest Earned</b> (Operating Income/Interest Expense)	<b>Net Profit Margin</b> (Net Profit/Sales Revenue)	<b>Dividend Payout Ratio</b> (Dividends/Net Income)
	<b>Total Asset Turnover</b> (Sales Revenue/Total Assets)	<b>Financial Leverage</b> (Total Assets/Total Stockholders' Equity)	<b>Return on Assets (ROA)</b> (Net Income/Total Assets)	<b>Dividend Yield</b> (Cash Dividends Per Share/Market Price of Common Stock Per Share)
	<b>Days Sales Outstanding (DSO) or Average Collection Period</b> (AR/Average Sales Per Day)		<b>Return on Equity (ROE)</b> (Net Income/Total Stockholders' Equity)	<b>Market-to-Book Value per Share</b> (Market Value Per Share/Book Value Per Share)
	<b>Days' Sales In Inventory</b> (Inventory/Average COGS Per Day)		<b>Operating Leverage Multiplier</b> (Net Income Growth/Sales Revenue Growth)	

Prepared by Dr. Juanita M. Rendon, CPA

22

Figure 9. Summary of Five Categories of Ratios. Source: Rendon (2016).

#### *a. Liquidity (Solvency) Ratios*

Liquidity ratios, also known as solvency ratios, measure a company's ability to meet its short-term obligations (Stickney et al., 2010). As shown in Figure 9, the current

and quick ratios are considered liquidity ratios. The banks and short-term suppliers evaluate a company's solvency prior to undertaking business with the company (Lev, 1974).

Three liquidity ratios are illustrated in Figure 9 along with the formulas. As an illustration, if the current ratio of a company is \$2.79, this indicates that this company has \$2.79 of current assets for every \$1 of current liabilities. Similarly, if the quick ratio of a company is \$0.89, this indicates that it has \$0.89 of cash and cash equivalents for every \$1 of current liabilities. The company's liquidity position may be considered weak when liquidity ratios are below the industry averages. A company with a strong liquidity position should have a higher liquidity ratio.

***b. Asset Management (Operating Efficiency)***

Asset management ratios, also known as operating efficiency ratios, measure how well a company is using its assets, which include capital investments, stock, inventory, and property, plant, and equipment (PP&E) to generate sales (Balatbat, 2011). Usually, a higher asset management ratio is preferred. In order to assess the performance of a company, its ratios can be compared with another company's ratios or against the industry average (Balatbat, 2011).

Six asset management ratios include Accounts Receivable Turnover Ratios, Inventory Turnover Ratios, Fixed Asset Turnover Ratios, Total Asset Turnover Ratios, Days Sales Outstanding (DSO) Ratios, and Days' Sales Inventory Ratios, which are illustrated along with formulas in Figure 9. The inventory turnover ratio shows how well a company is managing its inventory. As an illustration, if the inventory turnover of a company is below the industry average, that indicates that the company might have poor control over inventory and may have obsolete inventory. The DSO measures the total number of days from the date of sale on credit to the date of collection of cash from customers (Gorczyńska, 2010).

As an illustration, if the DSO is 47 days, that may indicate that it took the company 47 days to collect from its customers who purchased goods on account. This is not a good sign because this indicates that the company is collecting slowly, which may

be due to a poor credit policy. The average collection period should be lower than the industry average. A model of a credit management process, including credit goals, credit policy, and credit management performance is shown in Figure 10 (Gorczyńska, 2010). The fixed assets (FA) and total assets (TA) turnover ratios measure efficiency and show how many dollars in sales a company can generate from each \$1 invested in its assets. Higher FA and TA turnover are preferred. For example, if a company's FA turnover is below the industry average, that indicates that the company may have excessive current assets, such as accounts receivable and inventory (Rendon, 2016).

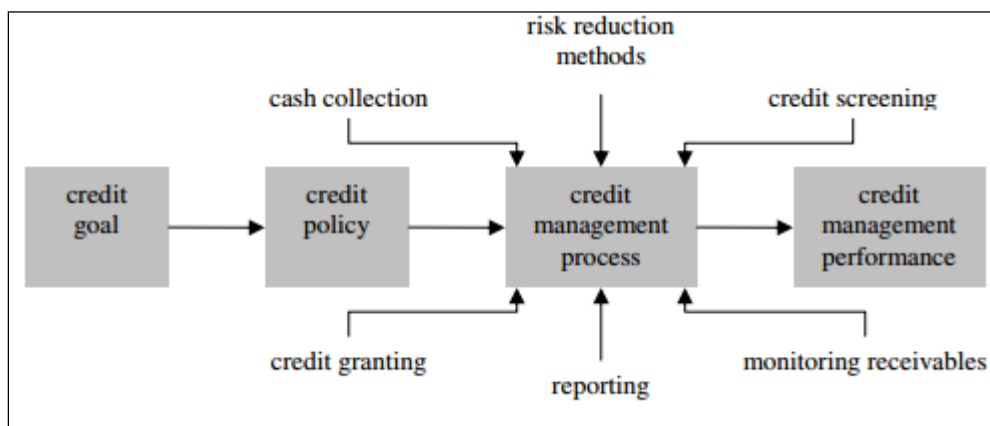


Figure 10. Model of Credit Management Process.  
Source: Gorczyńska (2010).

### c. *Debt Management Ratios*

Long-term debt ratios measure the ability of a company to meet long-term financial requirements (Leve, 1974). Debt management ratios help identify a company's mix of equity and debt; they also determine whether a company is highly leveraged or not (Stickney et al., 2010).

Four debt management ratios include the Debt to Equity Ratio, Debt Ratios, Time Interest Earned Ratio, and the Financial Leverage Ratio, which are illustrated in Figure 9 along with the formulas. For example, the debt ratio measures the percentage of each \$1 of assets financed with debt, which is called the total debt to total asset ratio (Valipour, Moradi, & Farsi, 2012). The times interest earned (TIE) ratio indicates the ability of a

company to pay interest on its debt (Newstex, 2015). Companies usually prefer a higher TIE. For example, if a company has \$7.40 of earnings before interest and taxes for each \$1 of interest that this company needs to pay to its creditors, this indicates that the company has enough earnings to pay for the interest on its long-term debt. A high debt ratio indicates a company is willing to take on more debt in its capital structure as well as more risk. As long as the company is doing well and can pay its long-term debt, it should be fine. However, a high debt ratio is a high risk for this company since the company could end up in bankruptcy if it is unable to pay its debt (Rendon, 2016).

***d. Profitability Ratios***

Profitability ratios are used to measure sales results and to show a company's ability to manage its expenses and thus to maximize its profits consistently (Nworgu, 2007). According to Lev (1974), profitability ratios are “an indicator of the firm's efficiency in using the capital committed by shareholders and lenders” (p. 13).

Six profitability ratios, which include Gross Profit Margin Ratio, the Operating Profit Margin Ratio, and the Operating Leverage Multiplier, are illustrated in Figure 9 along with the formulas. For example, the Net Profit Margin (NPM) ratio represents the company's ability to translate sales dollars into net profits. The companies usually prefer a higher NPM. The Return on Assets (ROA) ratio measures the profit a company will make from each \$1 invested in its total assets. The Return on Equity (ROE) ratio shows how much the company is earning in cents for each \$1 of shareholders' investment. As an illustration, if a company earned 7.5 cents for each \$1 of the assets and 12.6 cents for each \$1 of its owner's investment (equity), this may indicate that the company's ROA and ROE are low, respectively, if compared to industry averages that have higher ROA and ROE ratios. Companies generally prefer higher ROA and ROE ratios (Rendon, 2016).

***e. Market Value Ratios***

Market value ratios, as described by Brigham and Houston (2007), “bring in the stock price and give us an idea of what investors think about the firm and its future

prospects” (p. 86). These ratios also determine the value of the share price of a publicly traded company’s stock (Davis & Peles, 1993).

Five market value ratios, which include Earnings per Share (EPS) Ratio, Price per Earnings per Share (P/E) ratios, Dividend Payout Ratio, Dividend Yield Ratio, and Market to Book Value per Share Ratio, are illustrated in Figure 9 along with the formulas. For example, EPS measures profit earned for each outstanding share of common stock, and P/E ratios indicate how much investors are willing to pay for that stock (Davis & Peles, 1993). Some investors are willing to pay more for the stock than others. It depends on whether the investor is conservative or a risk taker. The higher P/E ratio indicates the company has higher potential for a higher return (Rendon, 2016).

## **6. Multivariate Analysis**

Multivariate analysis is used to predict the behavior of a company prior to the occurrence of an actual event. The following section discusses both bankruptcy ratio analysis and fraud ratio analysis.

### ***a. Bankruptcy Ratio Analysis***

Bankruptcy is a legitimate proceeding that indicates a company’s inability to repay its outstanding debt (Altman, 2000). Gerstenberg in 1951 (as cited by Beaver, 1967) suggests that a company fails in operations “when any of the following events have occurred: bankruptcy, bond defaults, an overdrawn bank account, or nonpayment of preferred stock dividend” (p. 569). Beaver (1967) conducted research on financial ratios as predictions of failure and paired the data of 79 failed firms with 79 non-failed firms to identify a company’s possible failure. The firms that he selected, covered 38 industries, and assets ranged from \$0.6 to \$45 million. Beaver (1967) selected the past five years of data before a company’s failure and used thirty ratios. His research suggests that bankruptcy ratio analysis helps predict a failure of a company a minimum of five years beforehand. He discovered that the ability to forecast failure is most likely in the cash flow to total debt ratio, which is calculated by dividing cash flow by total debt (Beaver, 1967). In fact, Altman (2000) praises Beaver’s work as “one of the classic works in the area of ratio analysis and bankruptcy classification” (p. 8).



Altman further improved on the work of Beaver (1967) and is famous worldwide for his expertise on bankruptcy (Grant et al., 2016). In 1968, Altman studied 66 corporations, including a sample of 33 failed companies and 33 non-failed companies. He used multiple discriminate analyses (MDA) as the appropriate statistical technique and identified the vulnerabilities of viewing the ratios from a univariate standpoint, which later became known as the Altman Z-Score model (Altman, 1968). This model predicted a company's bankruptcy two years beforehand, and it also forecasted bankruptcy with 95% accuracy (Altman, 1968). Altman (2000) further updated the model to enhance accuracy, and the new model utilizes four ratios instead of five ratios. The four ratios are working capital/total assets; retained earnings/total assets; net profit before interest and tax/total assets; and stockholders' equity/total liability (Altman 2000). The Z-Score smaller than 1.1 indicates that a firm would become bankrupt in the future and a value greater than 2.6 indicates that the company will not become bankrupt (Grant et al., 2016). However, Gates (1993) highlights the limitation of Z-Score values between 1.10 and 2.60, which do not predict bankruptcy. The creditor uses the Z-Score model as a valuable tool, and this model assists to investigate the loan applications, which saves money for the financial institutions (Altman, 1968). The Z-Score formula used to detect bankruptcy potentials, using the five ratios, is illustrated in Figure 11.

<p>(I) <math>Z = .012X_1 + .014X_2 + .033X_3 + .006X_4 + .999X_5</math>  where <math>X_1 =</math> Working capital/Total assets  <math>X_2 =</math> Retained Earnings/Total assets  <math>X_3 =</math> Earnings before interest and taxes/Total assets  <math>X_4 =</math> Market value equity/Book value of total debt  <math>X_5 =</math> Sales/Total assets  <math>Z =</math> Overall Index</p>
---

Figure 11. Z-Score Formula to Detect Bankruptcy. Source: Altman (1968).

Blum (1974) challenged Altman's Z-Score model and developed his own Failing Company Model. Blum (1974) selected 115 failed firms and 115 non-failed firms and based his calculations on discriminate analysis. His selected 12 variables covered

profitability, variability, and liquidity (Blum, 1974). The Failing Company Model is illustrated in Figure 12 (Blum, 1974)

<i>The Failing Company Model</i>	
I. Liquidity:	
A. Short-Run Liquidity	
Flow:	1. The “quick flow” ratio <sup>a</sup>
Position:	2. Net quick assets/inventory
B. Long-Run Liquidity	
Flow:	3. Cash flow/total liabilities
Position:	4. Net worth at fair market value/total liabilities <sup>b</sup>
	5. Net worth at book value/total liabilities
II. Profitability:	6. Rate of return to common stockholders who invest for a minimum of three years <sup>c</sup>
III. Variability:	7. Standard deviation of net income over a period
	8. Trend breaks for net income <sup>d</sup>
	9. Slope for net income <sup>e</sup>
	10-12. Standard deviation, trend breaks, and slope of the ratio, net quick assets to inventory; variables 10, 11, and 12 are only used at the first and second year before failure.

Figure 12. The Failing Company Mode. Source: Blum (1974).

Blum (1974) believed his Failing Company Model was superior to the Z-Score model. According to Blum (1974), the Z-Score produces illogical conclusions and “thus a firm would be predicted to fail at an unspecified time” (p. 13).

Although Blum (1974) promoted his Failing Company Model, Altman’s (2000) Z-Score became well known, and references to his expertise about bankruptcy can be found in many scholarly articles and recent literature (Gates, 1993; Altman, 2000; Beneish, Lee, & Nichols, 2013; Grant et al., 2016). Altman (2000) has continued to further update his bankruptcy model and his Scanner Credit Risk Analysis Model. An application on his original Z-Score model has been developed for United States and non-United States private and public companies, both manufacturing and non-manufacturing. This application provides 1–10 years of probability of default in the future and provides a comparison of companies within the industry. Altman Z-Score + (n.d.) also developed an important edition of web-based and scanner products such as the Altman Z-Score plus.

The user can simply enter the company's ticker on the website, and it automatically provides up to 3700 U.S. listed companies' Z-Scores, Bond Rating equivalent (BRE), probability of default, and percentile ranking within an industry. Altmanzscoreplus.com is a very useful website to study Z-Score models and other related subjects (Altman's Z-Score +, n.d.).

**b. *Fraud Ratio Analysis***

According to Whittington and Pany (2008), the Statement on Auditing Standards number 99 (SAS 99) describes fraud as an intentional act by the management or employees that causes material misstatements in the financial statement. SAS 99 states that frauds arise from misappropriation of assets or misstatements resulting from fraudulent financial reporting (Whittington & Pany, 2008). Beneish (1999) is considered the leading expert in identifying financial statement fraud. He conducted research studies on the detection of earnings manipulations in 1999. Beneish (1999) states that earnings manipulations happen when a company intentionally does not follow the GAAP, and the company exaggerates its earnings to indicate growth and a positive financial position for the company. He developed the M-score model and analyzed a sample of 74 companies that manipulated earnings. The M-score model examined eight variables (p. 40). An M-Score larger than -1.78 indicates a potential manipulator (Beneish, 1999). Whereas, Omar, Koya, Sanusi, & Shafie (2014) state that an M-Score larger than -2.22 suggests that a company manipulates its earnings, Beneish et al. (2013) state:

an accounting-based earnings manipulation detection model has strong out-of-sample power to predict cross-sectional returns. Companies with a higher probability of manipulation (M-score) earn lower returns on every decile portfolio sorted by size, book-to-market, momentum, accruals, and short interest. The predictive power of M-score stems from its ability to forecast changes in accruals and is most pronounced among low-accrual (ostensibly "high-earnings-quality") stocks. These findings support the investment value of careful fundamental and forensic analyses of public companies. (p. 57)

The M-score formula includes eight fraud ratios that depict different formulas used to calculate the fraud ratios (as shown in Figures 13 and 14).

$$\begin{aligned}
M\text{-score} = & -4.84 + 0.920(\text{DSR}) + 0.528(\text{GMI}) \\
& + 0.404(\text{AQI}) + 0.892(\text{SGI}) \\
& + 0.115(\text{DEPI}) - 0.172(\text{SGAI}) \\
& + 4.679(\text{Accruals}) - 0.327(\text{LEVI}).
\end{aligned}$$

Figure 13. M-Score Formula to Detect Fraud. Source: Beneish et al. (2013).

Exhibit A1. Description of Variables and Rationale for Inclusion		
Variable	Description (numbers in brackets are Compustat codes)	Rationale
DSR	$(\text{Receivables}_t [2]/\text{Sales}_t [12]) / (\text{Receivables}_{t-1}/\text{Sales}_{t-1})$	Captures distortions in receivables that can result from revenue inflation
GMI	Gross margin <sub>t-1</sub> /Gross margin <sub>t</sub> , where Gross margin = 1 - Costs of goods sold [8]/Sales	Deteriorating margins predispose companies to manipulate earnings
AQI	$[1 - (\text{PPE}_t + \text{CA}_t)/\text{TA}_t] / [1 - (\text{PPE}_{t-1} + \text{CA}_{t-1})/\text{TA}_{t-1}]$ , where PPE is net [8], CA is current assets [4], and TA is total assets [6]	Captures distortions in other assets that can result from excessive expenditure capitalization
SGI	$\text{Sales}_t [12] / \text{Sales}_{t-1}$	Managing the perception of continuing growth and capital needs predisposes growth companies to manipulate sales and earnings
DEPI	Depreciation rate <sub>t-1</sub> /Depreciation rate <sub>t</sub> , where Depreciation rate equals Depreciation [14-65]/(Depreciation + PPE [8])	Captures declining depreciation rates as a form of earnings manipulation
SGAI	$(\text{SGA}_t [189] / \text{Sales}_t [12]) / (\text{SGA}_{t-1} / \text{Sales}_{t-1})$	Decreasing administrative and marketing efficiency (larger fixed SGA expenses) predisposes companies to manipulate earnings
Accruals <sup>3</sup>	$(\text{Income before extraordinary items [18]} - \text{Cash from operations [308]}) / \text{Total assets}_t [6]$	Captures where accounting profits are not supported by cash profits
LEVI	Leverage <sub>t</sub> /Leverage <sub>t-1</sub> , where Leverage is calculated as debt to assets: $(5 + 9)/6$	Increasing leverage tightens debt constraints and predisposes companies to manipulate earnings

Figure 14. Explanation of M-Score's Fraud Ratios.  
Source: Beneish et al. (2013).

## **7. Advantages and Disadvantages of Financial Ratios**

The end-users select appropriate ratio to evaluate the financial position of a company. Using ratio analysis has advantages as well as disadvantages. Wells (2000) describes how ratios are useful but also how fraudsters can manipulate their earnings. One advantage is that ratio analyses give better indications to the auditors and end-users of how well the company is doing financially (Well, 2000). Another advantage is that financial ratios are the simplest means to evaluate a company's financial position without reading all of the details of the financial statements (Faello, 2015). Yet another advantage is that financial ratios aid shareholders and management in comparing companies with other companies to assess the financial health and to develop short-term and long-term trend analysis (Grant et al., 2016).

One of the disadvantages of ratio analysis is that it becomes difficult to establish a baseline for different companies that operate within different industries (Grant et al., 2016). A second disadvantage is that external factors and operating environments also affect the overall financial analysis of a company. A third disadvantage is that selection of financial ratios depends on the end-user because different ratios may be selected by the end-user. All ratios are not applicable to every company. A fourth disadvantage is that ratios use historical data that may not accurately predict the future of a company (Grant et al., 2016). The following section discusses the Committee of Sponsoring Organizations of the Treadway Commission (COSO)'s internal control framework.

### **E. COSO INTERNAL CONTROL FRAMEWORK**

This section discusses the COSO internal control framework, internal control key concepts, importance of internal controls, objectives of internal controls, components of internal controls, effective internal controls, limitations of internal controls, and internal controls as an integrated framework. The following section focuses on the COSO internal control framework.

## **1. COSO Internal Control Framework**

COSO is a private sector initiative jointly sponsored and funded by the American Accounting Association, the American Institute of Certified Public Accountants, the Financial Executive International, the Institute of Management Accountants, and the Institute of Internal Auditors (COSO, 2013). COSO released the internal control integrated framework in 1992 for designing, implementing, conducting, and assessing internal controls and updated it in 2013. Over the years, the framework has attained worldwide recognition and acceptance. The COSO (2013) integrated framework describes internal controls as the process “effected by an entity’s board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance” (p. 3).

## **2. Key Concepts of Internal Controls**

Whittington and Pany (2012) suggest controls over financial reporting should include preventive controls, detective controls, and corrective controls. Different controls overlap in achieving control objectives such as complementary controls functioning together, redundant controls addressing the same financial statement assertions and objectives, and compensating controls mitigating the risk of misstatements (Whittington & Pany, 2012).

## **3. Importance of Internal Controls**

Effective internal controls safeguard an organization both by reducing the chances for intentional or unintentional fraud that may be harmful (preventive controls) and by ascertaining minor errors early before they become big issues at later stages (detective controls) (ACIPA, 2014). The internal controls ensure conservation and protection of assets, proficiency in the business operations, prevention and detection of fraud and other unlawful acts, completeness and accuracy of financial records, and timely preparation of financial statements (ACCA, 2016).

The COSO Framework (2013) is very useful for management and the board of directors of a company as well as for all of the personnel in different organizations. This

framework is applicable to industry as well as government agencies to help ensure accountability. It affords flexibility and assists in designing, applying, and executing internal controls at different levels within an organization. This framework identifies risks, provides guidelines for response to the risks, and stresses anti-fraud procedures. The management of an organization can increase the applicability of internal controls over financial reporting. This affords the opportunity to remove unproductive, unnecessary, and ineffective controls that offer nominal value in risk reduction. COSO (2013) enhances confidence of external stakeholders in the board of directors regarding the entity's achievements, identification and response to the risks, and ability to mitigate inefficient, ineffective, and redundant controls (COSO, 2013).

For example, Marden and Edward (2005) analyzed a restaurant's fraud where the owner of the restaurant could not figure out why his accounting procedures were not matching his anticipated outputs. The owner of the restaurant realized the importance of internal controls to mitigate the chances for employees to steal cash. Internal controls are equally important for both small and large companies in order to deter fraud and misappropriations (Marden & Edward, 2005).

#### **4. Objectives of Internal Control**

COSO (2013) integrated framework suggests three types of objectives—operation-related, reporting, and compliance—for internal controls for an organization.

- Operation-related objectives concern an organization's proficiency regarding effective and efficient operational performance;
- Reporting objectives pertain "to internal and external financial and non-financial reporting and may encompass reliability, timeliness, transparency, or other terms as set forth by regulators, recognized standard setters, or the entity's policies" (p. 3); and
- Compliance objectives refer to compliance with regulations and rules that are applicable to the company (COSO, 2013).

## **5. Components of the COSO Internal Control Framework**

The five components of the COSO internal control integrated framework include the control environment, risk assessment, control activities, information and communication, and monitoring activities (COSO, 2013). These components are described in the following sections.

### ***a. Control Environment***

According to COSO (2013), the control environment has a great impact in implementing internal controls throughout an organization. The control environment includes a foundation for internal control policies and implementation throughout the organization. The control environment includes the culture of an organization, ethics, principles, integrity, good governance by the board of directors, balanced workload, human capital development of employees, rewards, and performance evaluation of the management and employees (COSO, 2013; Whittington & Pany, 2012).

Noland and Metrejean (2013) emphasize the importance of the internal control environment and cite the June 2010 case of a non-existent control environment that resulted in a big expense account fraud at Blue Grass Airport in the United States. This fraud demonstrates the importance of the control environment and internal control procedures (Noland & Metrejean, 2013).

### ***b. Risk Assessment***

COSO (2013) identifies risk as an occurrence of an event that would hamper an organization in achieving its goals. These risks may be from internal or external sources. The management should identify the risks associated with every objective. For example, the enterprise risk management framework addresses eight components, which include internal environments, objectives setting, identification of events, risk assessment and response to risk assessment such as avoidance, reduction, sharing, and acceptance, control activities, information and communications, and supervision (Whittington & Pany, 2012). Janvrin, Payne, Byrne, Schneider, and Curtis (2012) state that an organization formulates objectives to identify and manage risks. The organization



manages the risks by involving management, analyzing internal and external factors, assessing the consequence of identified risks, and preparing strategies to address identified risks. The organization identifies potential fraud, including risk factors, and evaluates the incentives, opportunities, and attitudes of employees (Janvrin et al., 2012).

***c. Control Activities***

The COSO (2013) framework identifies actions comprising various processes and policies that may reduce risk and benefit management in reaching its objectives. Control activities include detective and preventive measures by a company. Control activities are also needed at every stage of operations of an organization and include business performance reviews, authorizations, reconciliations, verifications, and approvals (COSO, 2013). Janvrin et al. (2012) state that management formulates responsibilities at every level of an organization and develops its employees. The management supervises an organization regarding formulation of its policies and procedures as well as implementation of an accountability system throughout the organization (Janvrin et al., 2012).

***d. Information and Communication***

Management acquires, provides, and utilizes appropriate information from both external and internal resources (COSO, 2013). The information, which includes the company's accounting system, helps assist management in achieving all of the other components of an internal control system. Furthermore, internal communication is necessary for sharing of relevant information within the organization related to progress. Internal communication enables management to send a strong message to encourage a sense of responsibility at various levels within the organization. External communication enables management to disseminate information in the organization and also keeps external stakeholders informed (COSO, 2013). Janvrin et al. (2012) state that the organization needs to identify the required information, obtain external and internal information, and conduct a cost-benefit analysis (CBA). Communication must also include communication with the board of directors and internal communication within the organization (Janvrin et al., 2012).

*e. Monitoring Activities*

Monitoring activities include separate evaluations and ongoing evaluations, or a combination of both, and are used to determine if the internal control components and related principles are being implemented (COSO, 2013). Ongoing evaluations are enforced on a permanent basis as part of the day-to-day functioning of a company, whereas separate evaluations are initiated on a required basis depending upon the management's demands, risk factors, and results of ongoing evaluations (COSO, 2013).

Ionescu (2011) states that the first four internal control components are related to the design and the operation of an internal control system. By contrast, the purpose of the fifth component, the monitoring activities, is to ensure that internal controls related to the other four components function efficiently and effectively. Regular monitoring is important to evaluate internal control performance, and absence of monitoring will lead to inefficiency (Ionescu, 2011).

**6. Components and Objectives' Relationship**

COSO (2013) states that a direct relationship “exists between objectives, which are what an entity strives to achieve, *components*, which represent what is required to achieve the objectives, and the *organizational structure* of the entity (the operating units, legal entities, and others). The relationship can be depicted in the form of a cube” (p. 6). The relationship is illustrated in Figure 15 with the three objectives shown in the columns and the five internal control components shown in the rows.



Figure 15. Relationship of Components and Objectives.  
Source: COSO (2013)

## 7. Effective Internal Controls

The COSO (2013) framework includes requirements that help ensure effective internal controls. Effective controls provide reasonable assurance in achieving the objectives of an organization by reducing the level of risk. Effective internal controls suggest that all related principles and components are present in the planning and execution process of a company. The components of the COSO internal control framework are integrated with each other. The components with the related principles are illustrated in Figure 16 later in this chapter. Whenever there is a deficiency in any of the five components and related principles, the company cannot state that it is following effective controls. Management determines the impact of external events on the efficiency of operations in achieving objectives. Such findings may assist management in predicting external events in order to prepare their organization for appropriate responses

to reduce external effects on operating activities (COSO, 2013). The characteristics of an effective internal control system include competent personnel, function segregation, transaction execution and recording, restricted asset access, and recognition of the limitations of internal controls (Lewis, 1985).

Agbejule and Jokipii (2008) describe the interrelationship between the control activities and monitoring activities for an effective internal control system. They suggest that for analyzers, a high level of monitoring activities and a high level of control activities may lead to an effective internal control system. Other researchers state that the internal control components are interrelated and argue that an increase or decrease in the usage of one component will result in an increase or decrease of use of another component (Maijoor, 2000; Gieger, Copper, & Boyle, 2004; Fadzil, Haroon, & Jantan, 2005, as cited by Agbejule and Jokipii, 2008).

## **8. Personnel Related to an Internal Control Integrated Framework**

The COSO framework (2013) is an integrated framework, and different stakeholders use this framework according to their roles and responsibilities. This framework is useful for the board of directors, senior management, other management and personnel, internal auditors, independent auditors, and educators.

### ***a. The Board of Directors***

The board of directors monitors the accountability of management. Management should inform the board of directors about risks associated with the achievement of objectives, internal control deficiencies, and management's processes to ensure effective internal controls. The board must obtain information from external and internal auditors and ensure the accountability of management through subcommittees of the board of directors (COSO, 2013).

### ***b. Senior Management***

Senior management must assess the internal controls of an entity and measure how well it applies the internal control components as well as the related principles.

Senior management should implement the updated version of the COSO framework (COSO, 2013).

***c. Other Management and Personnel***

Other management and personnel are responsible for assessing the new variations proposed by the latest framework. They should evaluate their responsibilities in ensuring that internal controls are implemented.

***d. Internal Auditors***

The internal auditors review the implementation progress of the COSO framework in comparison to the company's internal control framework. Internal auditors also consider the impact of ongoing changes of their audit plans, audit assessment, and internal control system COSO (2013).

***e. Independent Auditors***

The independent auditors are employed by companies to assess the internal controls' effectiveness with regard to financial reporting. The independent auditors evaluate the internal control system of a company in relation to the COSO framework and assess the effectiveness of its internal controls.

***f. Educators***

COSO (2013) emphasizes education and suggests that the COSO framework should be included as a teaching tool in different universities.

**9. Limitations of Internal Controls**

Although internal controls are important, there are some limitations to internal controls. Errors may occur during the performance of internal controls due to the misunderstanding of instructions, negligence, distraction, errors of judgment, or fatigue (Whittington & Pany, 2012). COSO (2013) acknowledges that despite effective internal controls, a company may have internal control failures because the internal controls cannot prevent bad judgment by management or by employees. Internal controls do not

provide absolute assurance; they only provide reasonable assurance that internal controls are working as planned. Hence, an organization's management should be aware of the limitations to help mitigate its effects. COSO (2013) suggests that limitations may occur due to human biased decisions. Errors and omissions may happen due to management's overrides and intent by management or any other party to circumvent the system. Despite effective internal controls, sometimes external environments such as changing trends in technology, customer demands, vendors' manipulations, market behavior, and economic downturns, also contribute to control failures of a company (COSO, 2013). The next section discusses the federal government internal control standards.

#### **F. FEDERAL GOVERNMENT INTERNAL CONTROL STANDARDS**

The COSO internal control framework previously discussed is also applicable to government agencies for accountability. The U.S. Government Accountability Office (GAO) uses the COSO internal control framework as its foundation for government internal controls, also known as the Green Book, to help ensure effective internal controls in the federal agencies (GAO, 2014). The Green Book encompasses four sections: an overview of the fundamental concepts of internal controls; internal control components, principles and their relationship with an entity's objectives; an entity's internal control evaluation regarding design, implementation, and operation; and additional considerations applicable to the internal control components (GAO, 2014).

The U.S. Office of Management and Budget (OMB) (2014) in section II of Circular A-123 discusses the standards and states "internal controls in a broad sense [are] included the plan of organization, methods and procedures adopted by management to meet its goals. Internal controls include a process for planning, organizing, directing, controlling, and reporting on agency operations" (p. 2). Internal controls' objectives are effectiveness and efficiency related to operations, financial reporting reliability, and pertinent rule and policy implementation. Management develops and maintains internal controls in achieving the standards of all five components of internal controls (OMB, 2014).

## **1. Importance of Governmental Internal Controls**

According to the Budget and Accounting Procedure of 1950 Act (as cited by GAO, 2005), the U.S. Congress recognizes the importance of internal controls and has placed that responsibility on the shoulders of management to establish and maintain internal controls (GAO, 2005). The Department of the Navy (DON, 2006) emphasizes that the personnel of the DON are accountable for government resources and need to use resources in accordance with federal laws to prevent fraud or mismanagement of resources. DiNapoli (2010) emphasizes the importance of internal controls and considers factors that contribute to fraud, including ineffective controls, overrides by management, and consent among employees or another party to circumvent the internal control system. AICPA (2002) provides a guide for anti-fraud measures and suggests that internal control implementation and monitoring are very important to deter fraud.

As an example of the importance of internal controls, the State Office of Minnesota (2014) revised its report, Statement Position of Internal Controls, to specify the purpose of internal controls. The internal controls contribute to accurate and reliable financial reporting, eventually safeguarding the assets of a company against fraud and errors. Internal controls increase management efficiency to identify risks beforehand and assist management to undertake measures against such identified risks (The State Office of Minnesota, 2014).

## **2. Key Concepts of Governmental Internal Controls**

According to GAO (2005), internal controls are a vital component to ensure accountability and efficient use of U.S. resources. Internal controls include a company's plans to achieve its objectives and assist management to detect and prevent fraud, misappropriations, and errors (GAO, 2014). The three categories of these objectives are operations encompassing efficiency and effectiveness, dependable reports for external and internal utilization, and compliance with relevant rules. GAO (2014) defines the system of internal controls as "a continuous built-in component of operations, effected by people, that provides reasonable assurance, not absolute assurance, that an entity's objectives will be achieved" (p. 5).

### **3. Components of the Governmental Internal Control Framework**

The five components of the COSO internal control integrated framework have also been adopted by U.S. government organizations. These five components are described in the following sections.

#### ***a. Control Environment***

According to GAO (2001), management and employees must create and sustain an atmosphere based on constructive and supportive attitudes. The key factors of the control environment include dedication to competence, integrity and moral principles, philosophy of management and style of operations, structure of the organization, assignment of responsibility and authority, policies related to human resource development and implementation, and oversight groups (GAO, 2001; GAO 2014).

#### ***b. Risk Assessment***

Risk assessment entails assessing the risk associated with accomplishing an organization's mission. This risk assessment needs to be performed on operations, programs, and administrative functions (The Secretary of Navy, 2008).

#### ***c. Control Activities***

The control activities are the methodologies that an organization identifies and develops, and implements per required policies to ensure the effectiveness of internal controls (The Secretary of Navy, 2008). Janvrin et al. (2012) state that an organization implements ethical values by setting the tone at the top. To this end, the board of directors should operate independently of management. In addition, segregation of duties is vitally important in any internal control system (GAO, 2014).

#### ***d. Information and Communication***

GAO (2001) specifies that an agency should look for reliable internal and external information for effective internal controls. The information, which includes an agency's accounting system, must be recorded and communicated to management and



disseminated to the employees to ensure internal controls are being followed for effective operating activities (GAO, 2001).

*e. Monitoring Activities*

GAO (2001) states that the monitoring activities evaluate the functioning standards of an organization to ensure that the organization is properly following the COSO integrated framework. This may help auditors in their analysis of the internal controls of a company (GAO, 2001).

**4. Effective Governmental Internal Controls**

Management should effectively design, implement, and operate all five components to achieve effective internal controls (GAO, 2014). Seventeen principles assist in establishing an effective internal control system. The five internal control components and their related principles are shown in Figure 16 (GAO, 2014).

Six factors for effective controls include enhanced guidance and implementation, a vigilant approach to monitor program objectives, management's support for an organization's goals, risk assessment with appropriate cost and benefit analysis (CBA), an evaluation process by the management to assess design and operation of controls, and the accountability of management (GAO, 2005).

On May 30, 2013, the U.S. DOD issued instructions about its Managers' Internal Control Program Procedures (DOD, 2013). The U.S. Office of Secretary of Defense issued a directive regarding the use of a comprehensive effective internal control system. They established managers' internal control programs to evaluate mission in-built risks, record and design controls, assess design and operation efficiency, detect control deficiencies, prepare reports, execute prompt responses, and monitor these corrective programs (DOD, 2013).

<p><b>Control Environment</b></p> <ol style="list-style-type: none"> <li>1. The oversight body and management should demonstrate a commitment to integrity and ethical values.</li> <li>2. The oversight body should oversee the entity's internal control system.</li> <li>3. Management should establish an organizational structure, assign responsibility, and delegate authority to achieve the entity's objectives.</li> <li>4. Management should demonstrate a commitment to recruit, develop, and retain competent individuals.</li> <li>5. Management should evaluate performance and hold individuals accountable for their internal control responsibilities.</li> </ol> <p><b>Risk Assessment</b></p> <ol style="list-style-type: none"> <li>6. Management should define objectives clearly to enable the identification of risks and define risk tolerances.</li> <li>7. Management should identify, analyze, and respond to risks related to achieving the defined objectives.</li> <li>8. Management should consider the potential for fraud when identifying, analyzing, and responding to risks.</li> <li>9. Management should identify, analyze, and respond to significant changes that could impact the internal control system.</li> </ol>	<p><b>Control Activities</b></p> <ol style="list-style-type: none"> <li>10. Management should design control activities to achieve objectives and respond to risks.</li> <li>11. Management should design the entity's information system and related control activities to achieve objectives and respond to risks.</li> <li>12. Management should implement control activities through policies.</li> </ol> <p><b>Information and Communication</b></p> <ol style="list-style-type: none"> <li>13. Management should use quality information to achieve the entity's objectives.</li> <li>14. Management should internally communicate the necessary quality information to achieve the entity's objectives.</li> <li>15. Management should externally communicate the necessary quality information to achieve the entity's objectives.</li> </ol> <p><b>Monitoring</b></p> <ol style="list-style-type: none"> <li>16. Management should establish and operate monitoring activities to monitor the internal control system and evaluate the results.</li> <li>17. Management should remediate identified internal control deficiencies on a timely basis.</li> </ol>
---	--

Source: GAO. | GAO-14-704G

Figure 16. Internal Controls Components with Related Principles.  
Source: GAO (2014).

The following section addresses audit readiness and its importance for the military.

**G. AUDIT READINESS**

This section describes the importance of audit readiness in military organizations. United States' organizations related to auditability standards, including the American

Institute of Certified Public Accountants (AICPA) and the Public Company Accounting Oversight Board (PCAOB), are discussed. Furthermore, Generally Accepted Government Auditing Standards (GAGAS), GAO reports, and Inspector General (IG) reports are introduced. This section also addresses the types of audits and the U.S. audit readiness best practices.

### **1. Importance of Audit Readiness in the Military Organizations**

Knubel (2010) emphasizes the importance of audit readiness and states that the U.S. DOD's progress toward audit readiness remains steady but slow. He contends that readiness for financial audits encourages public confidence. Knubel (2010) believes that the financial downturn of corporate industry, fraud, and scandals have eroded the confidence of taxpayers in the financial institutions. Similarly, although the taxpayers value the sacrifices and contributions of military personnel for the national security, they are concerned about fair and appropriate use of taxpayers' money and national resources (Knubel, 2010).

According to GAGAS (2011), the accountability concept to employ governmental authority and resources is fundamental to the U.S. national governing process. Management using public assets are "responsible for carrying out public functions and providing service to the public effectively, efficiently, economically, ethically, and equitably within the context of the statutory boundaries of the specific government program" (GAGAS, 2011, p. 4). Connolly-Somich (2013) stresses the need for audit readiness and states that the audit of military agencies is important to obtain accurate financial information that will assist management in decision-making. Furthermore, it will assure the Congress and the U.S. citizens that the military leadership is responsible enough to ensure accountability of public funds.

### **2. An Introduction of U.S. Agencies Related to Audit Readiness**

This section provides an introduction to U.S. agencies and areas related to auditability. The AICPA, Public Company Accounting Oversight Board (PCAOB), the GAGAS, GAO, and the Inspectors General (IG) are introduced next.

a. *American Institute of Certified Public Accountants*

The AICPA was founded in 1987 and formulates standards “for audits of private companies and other services by CPAs, provides educational guidance materials to its members, develops and grades the Uniform CPA Examination, and monitors and enforces compliance with the profession’s technical and ethical standards” (AICPA, n.d.). The AICPA’s professional hierarchy is represented in Figure 17, which shows the principles and rules of the code of professional conduct at the top of the pyramid (AICPA, n.d.).

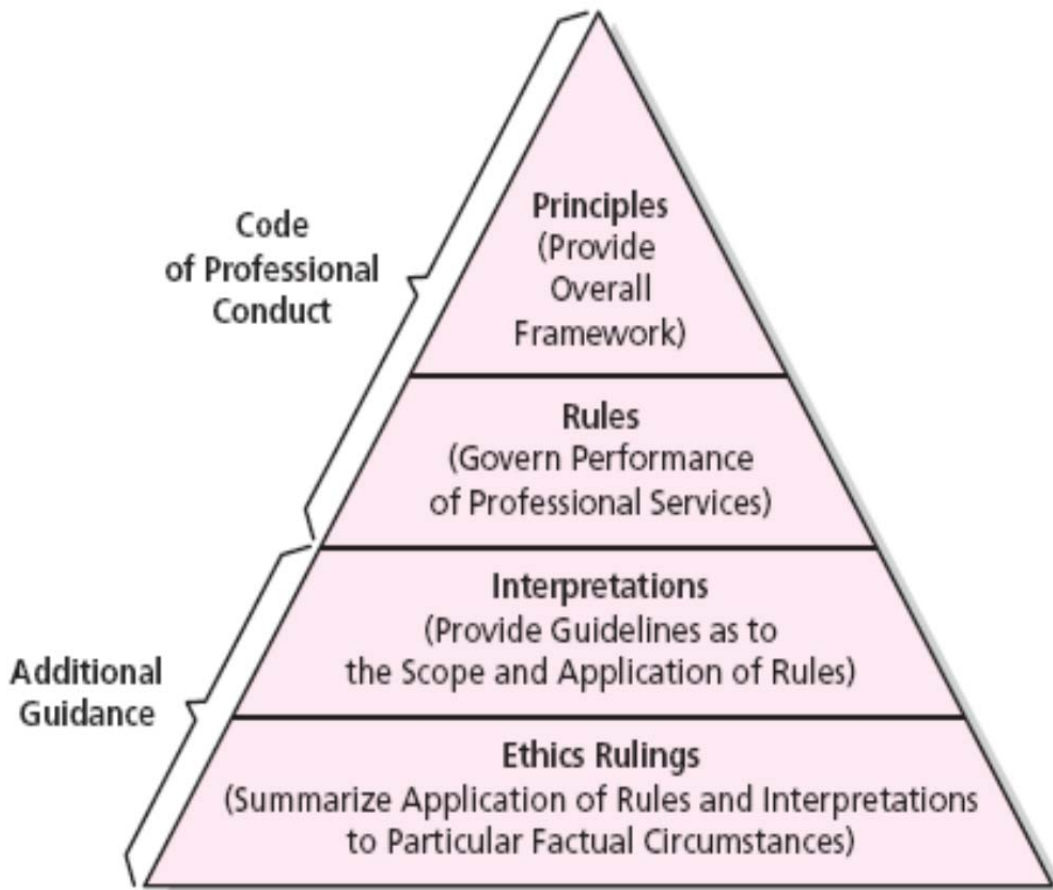


Figure 17. AICPA Professional Ethics: Source: AICPA (n.d.).

***b. The Public Company Accounting Oversight Board***

The U.S. Congress established the PCAOB as a nonprofit organization that conducts audits of public companies independently. The PCAOB encourages the confidence of investors and the public through reliable and accurate audit reports (PCAOB, n.d.). The Sarbanes-Oxley Act of 2002 formed the PCAOB, and this act “required that auditors of U.S. public companies be subject to external and independent oversight for the first time in history” (PCAOB, About the PCAOB, n.d.). The U.S. Securities and Exchange Commission appoints five members, including a chairman, for a five-year term on the PCAOB. The SEC approves policies, budget, and criteria for the PCAOB and is an oversight authority over the PCAOB. (PCAOB, n.d.).

The PCAOB reorganized its auditing standards, which became effective as of December 31, 2016. The PCAOB Auditing Standards include the following categories: General Standards of Audits, Procedures Related to Audits, and Audit Reporting. The General Standards of Audits categories include overall responsibilities and principles, concepts, activities, and audit communications. The Procedures Related to Audits categories comprise Planning of Audit and Risk Assessment, Audit of Internal Controls over Financial Reporting, Response of Audit Procedures, Procedures of Audit Disclosure, Special Matters, Responsibilities of Auditors, Audit Conclusions, and Post-Audit Reports. The Audit Reporting categories include Reporting on Audits of Financial Statements and other Reporting topics (PCAOB, n.d.).

***c. Generally Accepted Government Auditing Standards***

The GAGAS, also known as the Yellow Book, guides auditors who conduct audits of government entities, including DOD, with competency, honesty, fairness, and impartiality (“GAO, Government auditing standards,” n.d.). The revised GAGAS (2011) has seven chapters. The topics addressed in the GAGAS (2011) are governmental audits, including foundations and ethical principles, auditing standards, applicability, and audit types and attestations. The GAGAS (2011) also describes the topics of professional ethics, integrity, and independence, financial audits, engagements of attestations,

standards for fieldwork including reasonable assurance, risks, audit evidence, recordkeeping, and reports related to performance.

***d. Government Accountability Office Reports***

The GAO, also known as Congress' watchdog, was founded in 1921 and works independently of Congress; it is a nonpartisan agency (GAO, n.d.). The head of GAO is the Comptroller General of the United States whom the President appoints for a 15-year term with the approval of the Senate (GAO, n.d.). GAO supports Congress in meeting constitutional responsibilities by ensuring federal governments' accountability to benefit the U.S. citizens (GAO, n.d.). GAO investigates on the requests of Congress or as mandated by law. GAO investigations include auditing an agency's operations, investigating allegations, reporting on government programs, analyzing policy, and issuing legal decisions and opinions (GAO, n.d.). GAO (n.d.) advises Congress and the head of executive agencies about efficiency, effectiveness, ethical standards, and responsiveness to government policies.

***e. DOD Inspector General Reports***

The DOD IG mission is "to provide independent, relevant, and timely oversight of the Department of Defense that supports the warfighter; promotes accountability, integrity and efficiency; advises the Secretary of Defense and Congress; and informs the public" (Office of IG, About IG, n.d.). The IG oversees federal government agencies to promote excellence and accountability. The IG's core values are "integrity, efficiency, accountability, and excellence" (Office of IG, n.d.). The U.S. Department of Defense Office of IG organizational structure is shown in Appendix G. The IG departments include audit, administrative inquiries, inquiries related to military criminal investigation service, special program and intelligence assessment oversight and policy, operations and special plans, and overseas contingency operations. The IG office publishes reports for Congress on a semiannual basis regarding challenges faced by management and publishes reviews about external quality control (Office of IG, n.d.).

### **3. Types of Audits in the Government**

This section discusses the types of audits in government. Types of GAGAS audits and attestation engagements, internal audits, financial audits, compliance audits, and operational audits are discussed next.

#### ***a. Types of GAGAS Audits and Attestation Engagements***

Whittington and Pany (2012) describe three types of audits to include internal audits, operational audits, and compliance audits. GAGAS audits include financial audits, attestation engagements, and performance audits. Attestation engagements may encompass financial and non-financial objectives, and attestation categories include examinations, reviews, and agreed-upon procedures (GAGAS, 2011).

#### ***b. Internal Audits***

Internal audits are very important components to ensure accountability that enhances efficiency of government operations (Friedberg & Lutrin, 2001). The Institute of Internal Auditors (IIA) describes the internal audit as “an independent, objective assurance and consulting activity designed to add value and improve an organization’s operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve effectiveness of risk management, controls, and governance process” (Whittington & Panny, 2012, p. 778). The IIA code expects internal auditors to follow ethical principles of integrity, independence, secrecy, and proficiency (IAA, n.d.). Continuous evaluation of a company is necessary to ensure efficiency and accountability (Burnaby & Hass, 2011). Internal auditors use globally accepted auditing standards to assess the performance of a company (Burnaby & Hass, 2011).

#### ***c. Financial Audits***

A financial audit represents an impartial evaluation of government agency reported financial information, and a financial audit obtains real information related to financial statements including the balance sheet and income statement (Salomia & Turlea, 2015). A financial audit evaluates whether reported information related to results,

financial conditions, and resource utilization is presented fairly in accordance with set standards. The GAGAS (2011) financial audit includes an audit of financial statements and other types of financial audits. The financial audit results are linked to independence, including independence of mind and independence of appearance (GAGAS, 2011). The relationship among audit objectives, risk of material misstatement, and audit procedures is shown in Figure 18 (Whittington & Pany, 2012).

**FIGURE 6.8** Relationships among Audit Objectives, Risks of Material Misstatement, and Audit Procedures

General Audit Objectives for Assets	Specific Audit Objectives for Accounts Receivable	Risks of Material Misstatement: "What Can Go Wrong"	Example Audit Procedures
Existence of assets	All recorded receivables exist.	Receivables may have been recorded that do not exist.  Management may have fraudulently overstated revenue and receivables by making inappropriate adjusting journal entries.	Confirm a sample of receivables by direct communication with debtors.  Review monthly adjusting entries for suspicious items.
Rights to assets	The client has rights to the receivables.	Accounting personnel may erroneously be treating a sale of receivables as a liability.	Review confirmations of liabilities to determine if receivables have been sold or factored.
Completeness of assets	All receivables are recorded.	Management may have shipped items before the end of the period but not recorded the sales and related receivables until the subsequent period.	Select a sample of sales invoices in the subsequent period and examine the related shipping document for date of shipment.
Cutoff of transactions	Sales and cash receipt transactions are recorded in the proper period.	Sales and receivables for the next period may be recorded in the current period.	Vouch sales and cash receipt transactions occurring near period end.
Valuation of assets	Receivables are presented at net realizable value.	Allowance for uncollectible accounts may be misestimated by management.  Allowance for sales returns and allowances may be misestimated by management.  Software routine to develop aged trial balance of receivables may have been erroneously programmed.	Investigate the credit ratings for delinquent and large receivables.  Compare the amount of credits given to customers in the subsequent period to the amount estimated by management.  Obtain an aged trial balance of receivables, test its clerical accuracy, and reconcile to the ledgers.
Financial statement presentation of assets	Receivables are properly presented in the balance sheet, with appropriate disclosures.	Accounting personnel may have failed to identify related party transactions.	Provide a list of related parties to all members of the audit team to assist in identification of the transactions.

Figure 18. Relationship among Audit Objectives Risk of Material Misstatement and Audit Procedures.  
Source: Whittington and Pany (2012).



*d. Compliance Audits*

Compliance with laws and regulations is demanded of every member of society, and this type of audit is vital for both internal and external auditors (Whittington & Pany, 2012). A compliance audit involves testing and reporting on compliance with rules, laws, set standards, and regulations by an organization (Whittington & Pany, 2012). In addition to auditing standards, GAGAS (2011) also imposes additional requirements related to ethics, consultation of old audit reports, audit communication, documentation, and reporting (Whittington & Pany, 2012).

*e. Operational Audits*

An operational audit, also known as a performance audit, reviews organizational structure, objectives of an organization, policies and plans related to operations, the control environment, and the main facilities of the organization (Norgaard, 1969). Financial audits focus on the measurement of the financial situation, operational results, and cash flow outcomes of an organization, whereas an operational audit focuses on proficiency, effectiveness, and economy of operations (Lane, 1983; Whittington & Pany, 2012).

An operational audit has seven steps (Whittington & Pany, 2012). The first three steps include definition of purpose, familiarity with structure of the organization, objectives and characteristics of the unit being audited, and a preliminary survey that identifies critical issues related to operations and potential problems. Steps four, five, and six include program development based on suitable tests and analysis to evaluate the operations of an organization as well as fieldwork encompassing an operational audit's execution and testing of samples, reports about findings, and recommendations. Step seven includes a follow-up to the audit staff including a re-examination if deemed necessary (Whittington & Pany, 2012). A performance audit assists management in improving program performance and operations, cost reduction, and decision-making (GAGAS, 2011).

#### **4.      **Auditability Aspects Related to Auditors' Professionalism****

This section discusses auditability aspects related the auditor's professionalism. The stages of an audit, the auditor's opinion, audit evidence and documentation, audit procedures, and professional ethics are discussed.

##### ***a.      Stages of Audit***

The stages of an audit are illustrated in Figure 19 (Whittington & Pany, 2012). Audit stages include planning the audit; obtaining an understanding of the client, its environment, and internal controls; assessing the material misstatement risk, and designing audit procedures (Whittington & Pany, 2012). Additional stages include performing further audit procedures, completing the audit, forming an opinion, and issuing the audit report (Whittington & Pany, 2012).

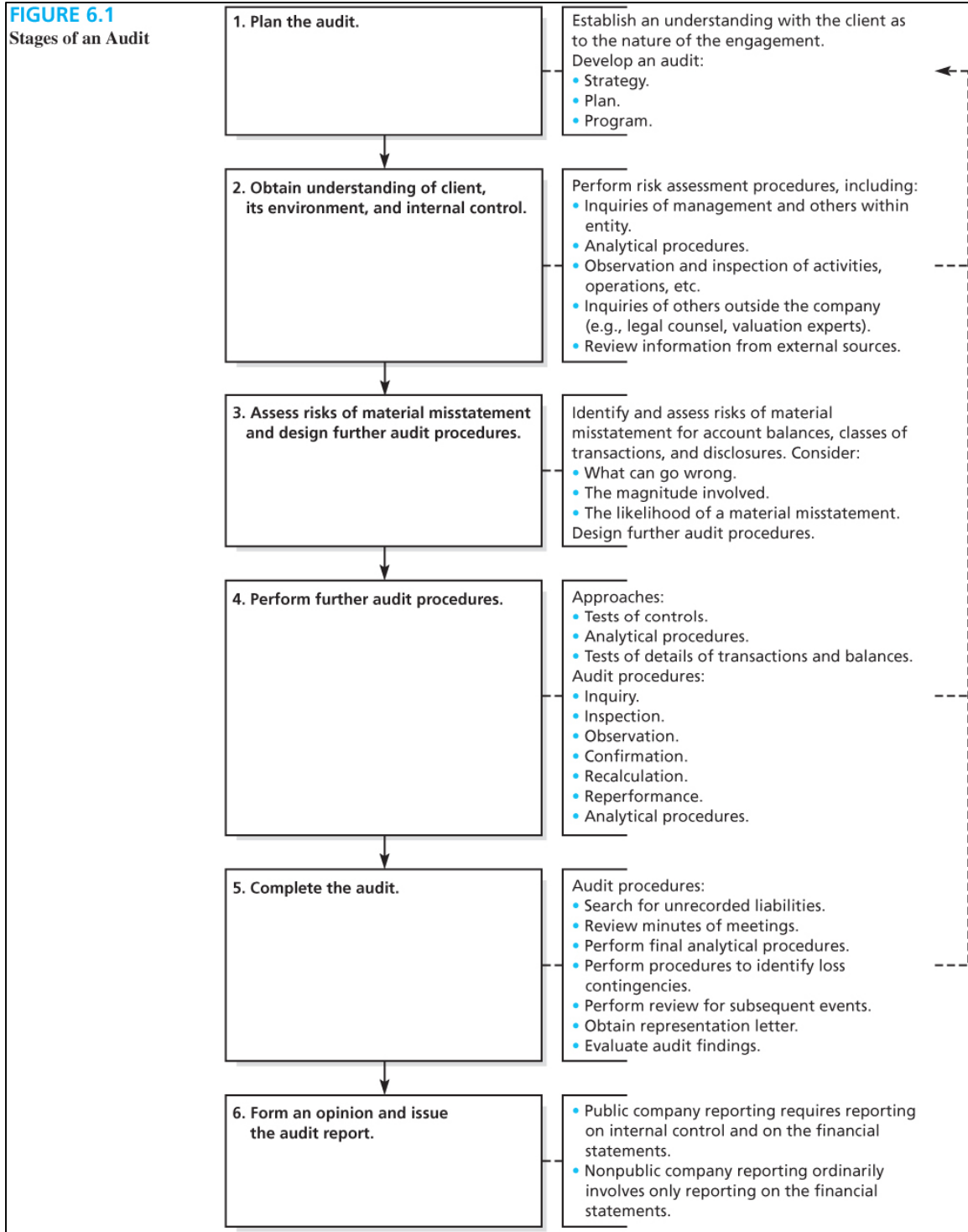


Figure 19. Stages of an Audit. Source: Whittington and Pany (2012).

***b. Auditor's Opinion***

The auditor's opinions are categorized as unqualified audit opinions, qualified audit opinions, adverse opinions, and disclaimer opinions (Husnatarina and Halim, 2013; Whittington and Pany, 2012). Husnatarina and Halim (2013) define an unqualified opinion as a compliance with GAAP, including consistency in the accounting principle application, and no material misstatement. An auditor gives a qualified opinion whenever there is an exception or objection to the fairness of financial statement presentation. An adverse opinion is given when pervasive and material deficiencies are found and an auditor is sure about material misstatements. The disclaimer opinion restricts an auditor from giving an opinion due to incomplete information provided by the auditee (Husnatarina and Halim, 2013).

***c. Audit Evidence and Documentation***

Payne and Ramsay (2008) emphasized the importance of audit evidence that sets the foundation for a credible audit opinion. Sufficient evidence about an incident leads to better assessment of that incident (Kostova, 2012). Audit evidence collection includes reasonable assurance, observation, and examination (Louwers, Ramsay, Sinason, & Strawser, 2007; Payne & Ramsay, 2008)

***d. Audit Procedures***

The auditors can detect fraud incidents and errors through a set of audit procedures at every stage of the audit (Kostova, 2012). Types of audit procedures include an inspection of assets, a review of documents and company books, observations, questionnaires and interviews, the collection of external information, confirmation, recalculation, and analytical procedures (Oprean & Span, 2009; Kostova, 2012). The analytical procedures determine the financial health of a company by conducting horizontal analysis, vertical analysis, and ratio analysis (Kostova, 2012).

***e. Professional Ethics***

The AICPA code of professional conduct defines the profession's rules and ethical principles (Herron & Gilberson, 2004). Auditors should prefer public interest over

personal interest; however, this is difficult to implement during audits. For example, auditors may be concerned about the codes directly related to rewards and punishments, and they may not be motivated by ethical principles. Herron and Gilberson, (2004) state that in order to make public interest a high priority for accountants “we need to better develop their capacity to reason at post-conventional levels” (p. 517). Professional ethics include responsibilities, public interest, integrity, objectivity and independence, due care, and scope and nature of service (GAGAS, 2011).

## **5. Audit Best Practices**

Miller (2015) states that the intelligence community and DOD are attempting to achieve an unmodified audit opinion on their financial statements by being audit ready. Easton (2012) emphasizes a balanced approach regarding audit readiness. A balance may be lost when preparations are not sufficient to attain or sustain goals and objectives (Miller, 2015). A comparison of an audit standards approach to a due diligence approach is illustrated in Figure 20 (Miller, 2015).

Audit Standards Approach	Due Diligence — Type Approach	Risk Posed by 'too much work'
Top-Down Approach — Focus is on entity level and key controls on material accounts and transactions that impact the financial statements. <b>AT 501.36</b>	Bottom-Up Approach — Controls at both the entity and transaction level, including some non-financial program controls are evaluated for the sake of thoroughness.	Focus on key controls is lost because all controls, including non-financial program controls, are documented and evaluated.
Persuasive Evidence — Information that is sufficient in quantity, and believable and trustworthy can come from several sources. <b>AU 326.06 SAS 106</b>	Conclusive Evidence — Information should be indisputable and leave no question as to the facts.	Progress is delayed by attempts to find or recreate hard quantitative data when other forms of evidence can suffice.
Reasonable Assurance — Not all processes and transactions will be tested by the auditor to form an opinion on the financial statements. <b>AU 230</b>	Absolute Assurance — Complete populations of transactions must be identified and understood so that nothing is missed in preparation for the audit.	More procedures are performed than are needed to provide a reliable indication of audit-readiness.
Materiality — Statements are not materially misstated. <b>AU 326</b>	Accuracy — Information in the statements must be free of errors.	All information is treated as if it is equally important to the financial statements.
Valid Reasoning — Logical analysis of evidence developed within the above framework provides the basis for the auditor's opinion. <b>AU 326.05</b>	Quantitative Reasoning <sup>8</sup> — Evidence based on the criteria above should nearly prove the correctness of the statements.	Agencies work to produce correct statements and avoid findings rather than working to reduce the risk of misstatement to an acceptable level.

Figure 20. Comparison of an Audit Standards Approach to a Due Diligence Approach. Source: Miller (2015).

Crouse (2012) states the Financial Improvement Audit Readiness (FIAR) directorate “collected best practices, lessons learned, and case studies to develop two series of interactive courses on financial statement audits within the Department” (p. 36). For a deeper understanding of audits, FIAR introduced two types of courses that include FIAR Tier I and FIAR Tier II. The purpose of these two courses is to train the personnel to assist military organizations in audit readiness. The FIAR Tier I and FIAR Tier II courses and curriculum are illustrated in Figure 21. In April 2016, the U.S. Office of the Under Secretary of Defense issued FIAR guidance for attaining audit ready financial statements by September 30, 2017. The FIAR Strategy is illustrated in Figure 22 (Office of the Undersecretary of Defense, 2016).

**A Deeper Understanding of Audit**

The OUSD(C) Financial Improvement Audit Readiness (FIAR) Directorate collected best practices, lessons learned, and case studies to develop two series of interactive courses on financial statement audits within the Department. Tier I is designed for personnel who assist with, execute, or supervise the execution of audit readiness activities. They are people whose day-to-day duties impact financial statement transactions, who assess and improve information technology controls, or who are process owners. Tier I comprises:

- FIAR 101 – Introduction to the FIAR Guidance and Internal Controls over Financial Reporting (ICOFR)
- FIAR 102 – FIAR Methodology for Reporting Entities and ICOFR Deliverables
- FIAR 103 – FIAR Methodology for Service Providers
- FIAR 301 – In-Depth Review of Management’s Responsibilities for Information Technology Controls When Preparing for a Financial Statement Audit

For personnel who have completed Tier I, Tier II further explores the FIAR Guidance Methodology for assessing, improving, and auditing budgetary resources and existence and completeness. Tier II comprises:

- FIAR 201 – FIAR Appropriations Received (Wave 1)
- FIAR 202 – FIAR Statement of Budgetary Resources (Wave 2) and Existence and Completeness of Mission Critical Assets (Wave 3)

Figure 21. FIAR Tier I and FIAR Tier II. Source: Crouse (2012).

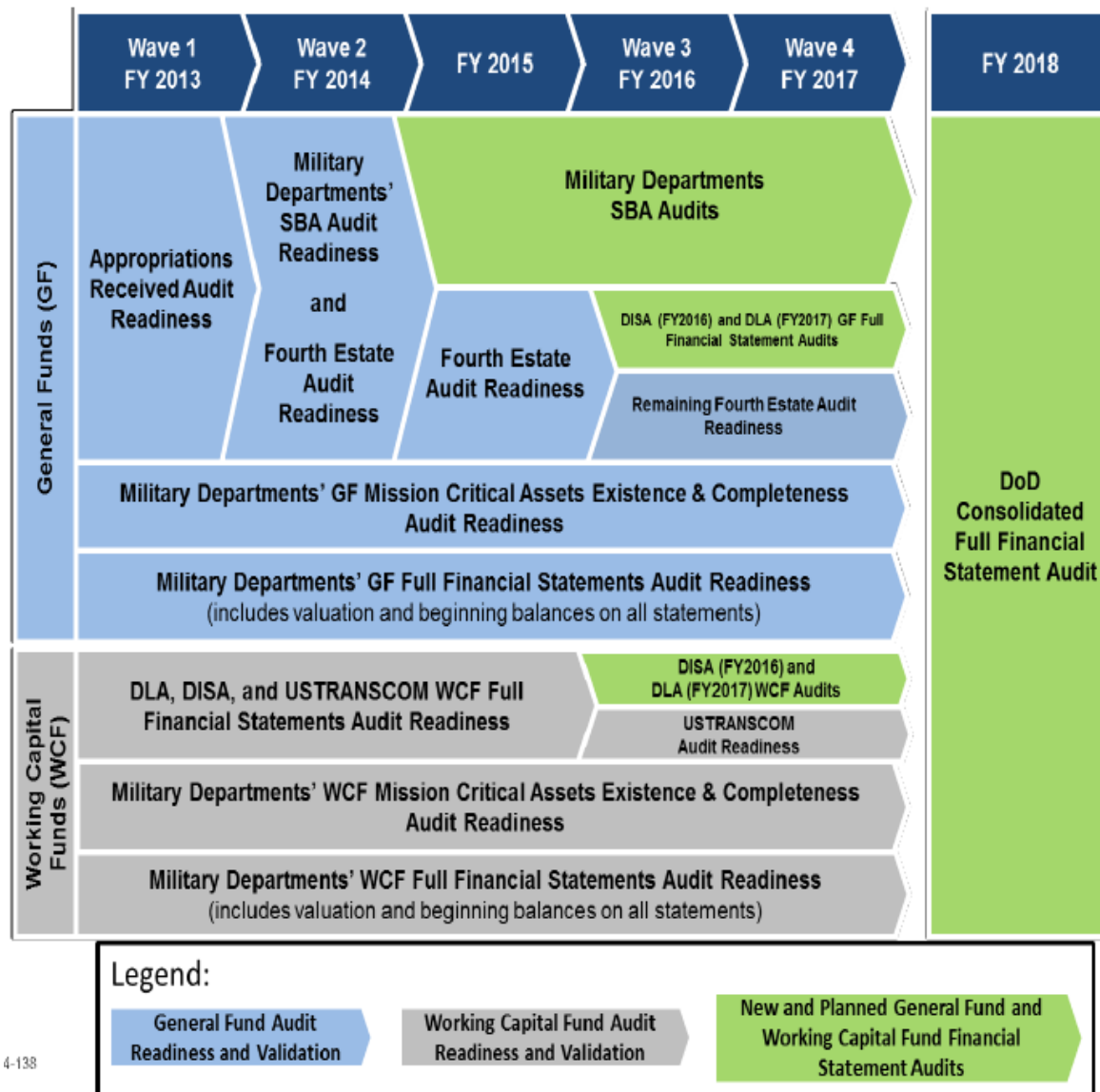


Figure 22. The FIAR Strategy. Source: Office of the Undersecretary of Defense (2016).

According to Coburn and Cosby (2016), the U.S. Army Financial Management Command (USAFMCOM) has been restructured from a unit of 41 personnel to a Financial Management organization of 217 personnel commanded by a Major General. USAFMCOM is trying to ensure Army-wide audit readiness. USAFMCOM's organization is shown in Appendix H.



The U.S. Navy Commander’s audit readiness checklist can be found at [http://comptroller.defense.gov/Portals/45/documents/fiar/Commanders\\_Audit\\_Readiness\\_Checklist.pdf](http://comptroller.defense.gov/Portals/45/documents/fiar/Commanders_Audit_Readiness_Checklist.pdf) (Under Secretary of Defense (Comptroller), 2012).

Rendon and Rendon (2015) formulated an auditability triangle that encompasses “competent personnel, capable processes, and effective internal control” aspects necessary to ensure audit readiness (p. 754). The Auditability Triangle is illustrated in Figure 23 (Rendon & Rendon, 2015).

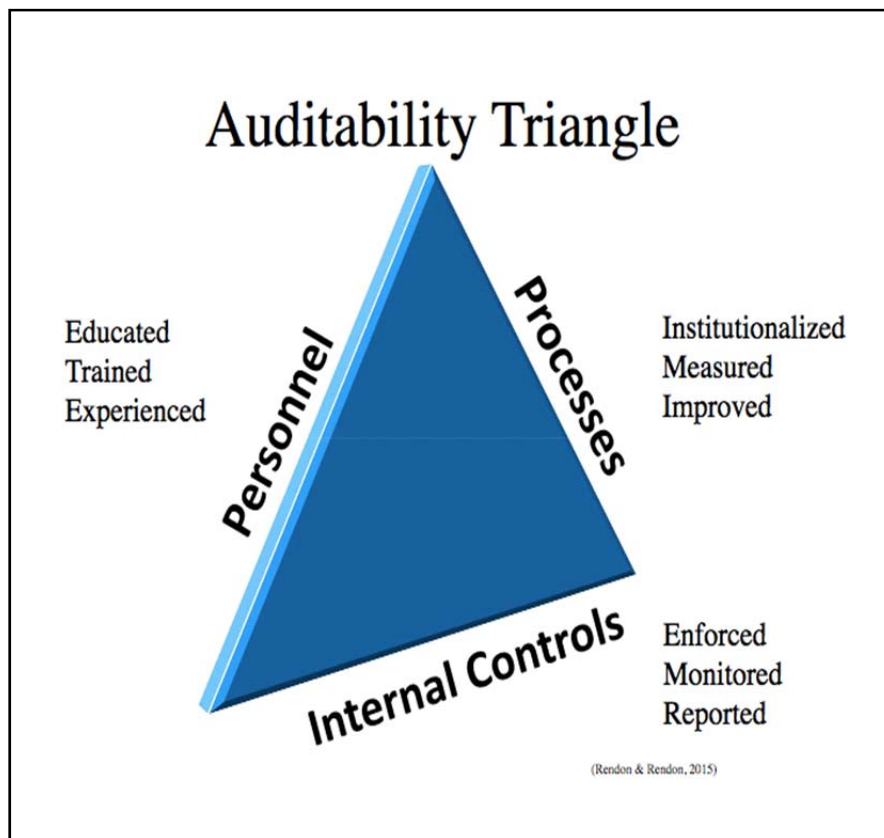


Figure 23. Auditability Triangle. Source: Rendon and Rendon (2015).

## H. SUMMARY

This chapter provided a literature review regarding financial statement analysis, internal controls, and audit readiness. A background of the Pakistani accounting standards, internal controls, and auditability was discussed. An overview of the four

significant U.S. financial statements, including the balance sheet, the statement of cash flows, the income statement, and the statement of retained earnings, were presented. This literature review described the process of financial statement analysis to include vertical analysis, horizontal analysis, ratio analysis, and multivariate analyses of financial ratios, including Beneish's M-Score for fraud indicators and Altman's Z-Score regarding bankruptcy.

Furthermore, the COSO framework related to internal controls was discussed. The COSO internal controls framework provided important aspects related to key concepts, importance, objectives, and components of internal controls. The federal government internal control standards were also presented. Additionally, this chapter identifies the importance of audit readiness for military organizations and introduces U.S. organizations related to auditability. The types of audits and the U.S. DOD best practices for audit readiness were discussed. The next chapter discusses the methodology used in this research study.

### **III. METHODOLOGY**

#### **A. INTRODUCTION**

This chapter provides the methodology and explains the approach adopted during the research process. This chapter discusses the identification of requirements for an educational guide, utilization of data to support the argument, analysis process, and the creation of an educational guide for Pakistan Army financial management officers.

#### **B. IDENTIFICATION OF REQUIREMENTS FOR AN EDUCATIONAL GUIDE**

This research encompasses three topic areas consisting of financial statement analysis, internal controls, and audit readiness in an educational framework. For financial statement analysis, the process identifies the requirements and procedures necessary to conduct a financial statement analysis of a publicly traded company. The requirements for effective internal controls are identified to select the criteria for the educational guide. This research also identifies the best practices for efficient auditability and continuous audit readiness.

#### **C. UTILIZATION OF SUITABLE DATA TO SUPPORT THE ARGUMENT**

The data to be utilized in this research includes scholarly articles, Pakistani government websites, U.S. government documents, and other documents related to financial statement analysis of a company. In addition, the COSO internal control framework best practices, and audit readiness best practices from the U.S. DOD websites are reviewed.

#### **D. ANALYSIS PROCESS**

The analysis portion selects suitable financial ratios from previous research discussed in the literature review. The analysis chapter explains the procedures necessary to evaluate the financial health of a publicly traded company. Similarly, this research study examines the best practices for effective internal controls based on the COSO framework and the U.S. government internal control framework and standards. This

research also selects the relevant best practices necessary to become audit ready. This study provides recommendations based on analysis related to financial statement analysis to determine the financial health of a potential contractor, internal control framework best practices, and audit readiness best practices.

#### **E. CREATION OF A GUIDE FOR PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS**

This research study creates an educational guide based on the recommendations for Pakistan Army financial management officers. This guide is included in Appendix I, which could be used by Pakistan Army financial management officers as a reference when making business decisions related to the determination of the financial health of a potential contractor, implementation of effective internal controls to deter fraud, and preparation for audit readiness of military organizations.

#### **F. SUMMARY**

This chapter has provided the methodology and explained the approach adopted during the research process. This chapter briefly discussed the identification of requirements for an educational guide, utilization of data to support the argument, the analysis process, and the creation of an educational guide for Pakistan Army financial management officers. The following chapter discusses the analysis and recommendations based on analysis.

## **IV. ANALYSIS AND RECOMMENDATIONS BASED ON ANALYSIS**

### **A. INTRODUCTION**

This chapter provides an analysis and a suitable framework with best practices to create an educational guide for Pakistan Army financial management officers. This chapter discusses the best processes adopted during the financial statement analysis to determine the financial health of a company. It examines the efficient and effective internal control system best practices necessary for a military outfit. Furthermore, it explores the best practices for audit readiness of a military organization. This study identifies the best practices of these three topic areas and discusses the implications for their implementation in the Pakistan Army. In order to illustrate the financial statement analysis steps and process, the researcher uses fictional data to represent financial data for Company A and Company B. Utilization of industry averages, Mergent's website information, and the Reuters website data has been included in the analysis process (Mergent, n.d.; Reuters, n.d.). Based on the literature review, the audit readiness analysis selects the suitable best practices from the U.S. DOD, and recommendations are made to prepare Pakistani Army units for audits. The best practices recommended regarding financial statement analysis, internal controls, and audit readiness are incorporated in an educational guide for the Pakistan Army financial management officers as shown in Appendix I. The following section discusses the financial statement analysis process.

### **B. FINANCIAL STATEMENT ANALYSIS PROCESS**

This section presents the four steps related to financial statement analysis. The first step describes trend analysis, including horizontal and vertical analysis, encompassing the balance sheet, the income statement, and the statement of cash flows. Five years of data for each company are presented for a better explanation of the analysis process. The second step includes a ratio analysis of five years of data and a comparative analysis within each company, between companies, and against industry averages. The

third step explains the bankruptcy analysis of both companies. The fourth step describes the fraud analysis of both companies.

## 1. Trend Analysis of Financial Statements

This trend analysis compares the five years of data for the balance sheet, income statement, and statement of cash flows of both companies within each year. This analysis does not present the complete data of a balance sheet, but only includes important items that are necessary to understand trend analysis. Therefore, this analysis discusses key assets and total liabilities.

### a. Balance Sheet Trend Analysis

The trend analysis of the balance sheets of Company A and Company B is illustrated in Table 2. Total assets, net inventory, and total liabilities of Company A are decreasing in each year. However, there is an up and down fluctuation in the accounts receivable starting in 2014 through 2016. The declining trend of total assets, net inventory, and total liabilities indicates the company may be shrinking, but final conclusions cannot be made at this time until a full analysis is completed. By contrast, in Company B, all of the four accounts are increasing at a steady pace and the trend indicates that the company is growing rapidly.

Table 2. Balance Sheet: Trend Analysis of Company A and Company B

Company A					
Millions of USD	2012	2103	2104	2015	2016
Total Assets	36520	35908	32405	30090	27264
Net Stated Inventory	4123	4073	3434	3199	2616
Account Receivable	10413	10832	9394	10518	9416
Total Liabilities and Debt	26601	25654	24099	24602	20678
Company B					
Total Assets	10,705	15,860	16,881	18,357	27,081
Net Stated Inventory	803	1,218	1,964	2,701	2,995
Account Receivable	3,526	5,437	5,588	5,557	7,838
Total Liabilities and Debt	8,871	13,499	14,428	15,559	23,210

**b. Income Statement Trend Analysis**

The trend analysis of an income statement of Company A and Company B is illustrated in Table 3. The revenue for Company A is decreasing at a steady pace from 2012 to 2016. On the other hand, the revenue for Company B is increasing at a steady pace from 2012 to 2016. The direct operating cost for Company A increases during 2012 and 2013, but direct cost decreases from 2014 steadily. The direct cost for Company B increases throughout, with a steady increase in the revenue as well. The net income (NI) of Company A decreases during 2013 and 2014 then increases during 2015 and 2016. For Company B, net income increases throughout 2012 to 2016. It appears that Company B faces no major issues; however, Company A remains in crisis during 2013 and 2014.

Table 3. Income Statement: Trend Analysis of Company A and B

<b>Company A</b>					
<b>Millions of USD</b>	<b>2012</b>	<b>2103</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Total Revenue	54,687	54,463	46,569	46,139	36,617
Direct Operating Cost	13,585	13,777	11,781	10,863	9,192
Net Income	665	521	-775	1096	1167
<b>Company B</b>					
Total Revenue	21,594	29,574	33,873	38,707	46,295
Direct Operating Cost	1982	2863	3273	4034	5574
Net Income	273	472	635	817	828

**c. Statement of Cash Flows Trend Analysis**

The trend analysis of cash flows of Company A and Company B is illustrated in Table 4. Operating activities of Company A and Company B are positive throughout 2012 to 2016. This indicates that both companies are managing their operating activities efficiently. In 2012, Company A has \$11 million as a positive net amount in the investing activities section. It appears that this company may be selling its long-term assets. This also shows that the company may have sold some obsolete long-term assets. In 2015, its financing activity section was a net - \$448 million, which may indicate that the company may have spent the largest amount on purchases of PP&E in this year as compared to

other years. In 2011, Company B has +65 million in the investing activity section as a net positive cash flow. This company may not have purchased either PP&E or did not purchase other investments. Other years show the company might have invested in PP&E, and all trends are negative. From 2012 to 2014, the financing cash flow is negative, and it shows the company pays its debts regularly. However, in 2016, financing cash flow is a net + \$2,142 million, which shows that the company may have received a loan to either expand PP&E or pay dividends to its shareholders.

Table 4. Cash Flows: Trend Analysis of Company A and B

<b>Company A</b>					
<b>Millions of USD</b>	<b>2012</b>	<b>2103</b>	<b>2104</b>	<b>2015</b>	<b>2016</b>
Total Cash from Operating Activities	7	6	2	1709	2334
Total Cash from Investing Activities	11	-2	-2	-1249	-1671
Total Cash from Financing Activities	-2	-2	-1	-448	-144
Foreign Exchange Effects	-98	-76	79	147	-12
Net change in cash	-94	-73	78	160	507
<b>Company B</b>					
Total Cash from Operating Activities	965	1,939	19	1,432	238
Total Cash from Investing Activities	65	-837	-245	-583	-3,281
Total Cash from Financing Activities	-372	-315	-68	-430	2,142
Effects of Exchange Rates	58	15	-9	-14	-102
Net change in cash	716	803	-303	404	-1,002

The end-users examine operating activities separately to know from where the company obtains the capital to undertake operations. Long-term assets should not be sold to maintain the operations of the company. End-users look for positive operating activities, which indicate how well a company is generating cash to operate its business. If operating activity is a negative number, this may indicate that a company is not collecting cash from its accounts receivable customers. If the investing activity is positive, it may indicate the principal payment on a notes receivable was received or that obsolete assets were sold. Nevertheless, if investing activities are positive because the company is selling its fixed assets, which help generate sales for the company, it may not



be a good sign for the company. It may indicate that this company is shrinking. Therefore, the positive investing activity may not be considered a good indicator for the financial health of a company. In addition, a positive financing activity may indicate that the company is issuing stock or bonds. Overall, the trends of both companies are positive, and a summary of the trend analysis of cash flows for Company A and Company B is illustrated in Table 5.

Table 5. Cash Flows: Trend Analysis of Company A and B

Company A				
Year	Operating	Investing	Financing	Analysis
2012	+	-	-	Growing
2013	+	-	-	Growing
2014	+	-	-	Growing
2015	+	-	-	Growing
2106	+	-	-	Growing
Company B				
Year	Operating	Investing	Financing	Analysis
2012	+	+	-	Growing
2013	+	-	-	Growing
2014	+	-	-	Growing
2015	+	-	-	Growing
2106	+	-	+	Debt to buy PP&E

## 2. Summary of Horizontal and Vertical Trend Analyses Using Percentages

Horizontal trend analysis shows trends over different years and gives information related to the growth or decline of the accounting values in the financial statements. In the comparative analysis, one trend is compared with another relevant trend. The horizontal trend analysis of selected items of the financial statements using 2012 as a base year is illustrated in Table 6. The vertical trend analysis is illustrated in Table 7. The financial data used in these tables is fictitious data. Total assets are the base number used

for the balance sheet, and revenue is the base number used for the income statement and statement of cash flows.

Table 6. Horizontal Trend Analysis of the Balance Sheet, the Income Statement, and the Statement of Cash Flow of Company A

<b>Company A Consolidated Balance Sheet</b>	<b>31-Dec-12</b>	<b>31-Dec-13</b>	<b>31-Dec-14</b>	<b>31-Dec-15</b>	<b>31-Dec-16</b>
<b>Assets</b>					
Current Assets	100%	30%	24%	23%	25%
Long Term Assets	100%	68%	65%	59%	50%
<b>Total Assets</b>	100%	98%	89%	82%	75%
<b>Liabilities</b>					
Current Liabilities	100%	30%	34%	22%	29%
Long Term Liabilities (Debt)	100%	67%	58%	59%	50%
<b>Total Liabilities</b>	100%	97%	92%	81%	79%
Retained Earnings	100%	69%	78%	65%	51%
Total Shareholders' Equity	100%	61%	89%	38%	34%
<b>Total Liabilities and Shareholders' Equity</b>	100%	98%	89%	82%	75%
<b>Company A Income Statement</b>	<b>31-Dec-12</b>	<b>31-Dec-13</b>	<b>31-Dec-14</b>	<b>31-Dec-15</b>	<b>31-Dec-16</b>
Revenue	100%	100%	85%	85%	67%
Operating Expenses	100%	113%	87%	86%	69%
Income Before Income Tax	100%	18%	117%	110%	71%
Income tax expense	100%	9%	116%	20%	89%
Net Income	100%	78%	-117%	165%	175%
<b>Company A Statement of Cash Flows</b>	<b>31-Dec-12</b>	<b>31-Dec-13</b>	<b>31-Dec-14</b>	<b>31-Dec-15</b>	<b>31-Dec-16</b>
Total Cash from Operating Activities	100%	96%	28%	110%	120%
Total Cash from Investing Activities	100%	136%	100%	140%	150%
Total Cash from Financing Activities	100%	84%	53%	170%	180%
Foreign Exchange Effects	100%	27%	-60%	-24%	-99%
Net change in cash	100%	112%	-42%	56%	-140%

Table 7. Vertical Trend Analysis of the Balance Sheet, the Income Statement, and the Statement of Cash Flow of Company A

Company A Consolidated Balance Sheet	31-Dec-12	31-Dec-13	31-Dec-14	31-Dec-15	31-Dec-16
<b>Assets</b>					
Current Assets	40%	32%	45%	41%	50%
Long Term Assets	60%	68%	65%	59%	50%
<b>Total Assets</b>	100%	100%	100%	100%	100%
<b>Liabilities</b>					
Current Liabilities	34%	32%	33%	30%	25%
Long Term Liabilities (Debt)	55%	65%	50%	45%	40%
<b>Total Liabilities</b>	70%	71%	65%	69%	73%
Retained Earnings	17%	19%	18%	15%	12%
Total Shareholders' Equity	110%	11%	9%	8%	6%
<b>Total Liabilities and Shareholders' Equity</b>	100%	100%	100%	100%	100%
Company A Income Statement	31-Dec-12	31-Dec-13	31-Dec-14	31-Dec-15	31-Dec-16
Revenue (sales activity)	100%	100%	100%	100%	100%
Operating Expenses	100%	90%	87%	92%	89%
Income Before Income Tax	100%	10%	13%	8%	11%
Income tax expense	100%	3%	16%	2%	2%
Net Income	100%	7%	-3%	6%	9%
Company A Statement of Cash Flows	31-Dec-12	31-Dec-13	31-Dec-14	31-Dec-15	31-Dec-16
Total Cash from Operating Activities	0.01%	0.01%	0.00%	3.7%	6.4%
Total Cash from Investing Activities	0.02%	-0.004%	.0.04%	-2.71%	-4.5%
Total Cash from Financing Activities	-0.003%	-0.003%	-0.02%	-0.97%	-0.4%

### 3. Financial Health Factors

Financial health factors discussed in the literature review are already incorporated in the income statement and balance sheet. For example the inventory, accounts receivable, working capital (current assets and current liabilities), and fixed assets are all part of the balance sheet. In addition, the net income, sales activity (revenues), and the

operating environment are all related to the income statement. The financial health factors are important in the process of analyzing company's financial condition.

#### **4. Ratio Analysis: Selection of Best Practices**

Chapter II explains the process of various ratio calculation procedures. In this chapter, based on the research work of Winicur (1993); Davis and Peles (1993); Brigham and Houston (2007); Williams et al. (2008); Stickney et al. (2010); Rendon (2016); and Grant et al. (2016), this research study selects two ratios from each of the five categories of ratios as the best practices for ratio analysis of financial statements. These ten ratios will assist Pakistan Army financial management officers in determining the financial health of a company. The calculation procedures of these ten ratios selected from the above-mentioned previous research is shown in Table 8. Only Company A data is presented to illustrate the financial statement analysis process.

Table 8. Categories of Ratios Selected for Financial Ratio Analysis

Category of Ratios	Ratios	Formulas to Calculate Ratios	Utilization
Liquidity (solvency) Ratios	Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Measures short-term solvency or the capability of a company to pay for its short-term debt obligations when they become payable.
	Quick Ratio	$\frac{(\text{Current Assets} - \text{Account Receivable} - \text{inventory})}{\text{Current Liabilities}}$	
Asset Management (Operating Efficiency) Ratios	Inventory Turnover Ratio	$\frac{\text{COGS}}{\text{Inventory}}$	Measures how well a company is managing its inventory.
	Days Sales Outstanding (DSO) Average Collection period	$\frac{\text{Accounts Receivable}}{\text{Average sales per Day}}$	Measures the total number of days between the date of sale and the date of cash collection.
Debt Management Ratios	Debt Ratios	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Measures the percentage of each \$1 of assets financed with debt
	Times Interest Earned Ratio	$\frac{\text{Operating Income}}{\text{Interest Expense}}$	Measures the ability of a company to pay interest on its debt
Profitability Ratios	Return on Assets (ROA)	$\frac{\text{Net Income}}{\text{Total Assets}}$	Measures the profit a company will make from each \$1 of investment in assets
	Return on Equity (ROE)	$\frac{\text{Net Income}}{\text{Shareholders' Equity}}$	Measures how much the company is earning in cents on each \$1 of shareholders' investment
Market Value Ratios	Earnings per Share (EPS)	$\frac{\text{Net Earnings}}{\text{Average Shares Outstanding}}$	Measures profit earned per each outstanding share of common stock
	Price Earning (P/E) Ratios	$\frac{(\text{Market Price of Common Stock})}{\text{EPS}}$	Indicates how much investors are willing to pay for stock. Used in valuing companies.

Adapted from Winicur (1993); Davis and Peles (1993); Brigham and Houston (2007); Williams et al. (2008); Stickney et al. (2010); Rendon (2016); and Grant et al. (2016).

The two ratios from each category encompassing five years of data, along with industry averages, are illustrated in Table 9. The data shown in Table 9 is fictitious data, and these figures are used to illustrate the financial ratio analysis process. For publicly traded companies, financial data is readily available at the SEC website and the companies' websites, where annual reports are provided. This data can also be found on the Mergent online website (Mergent, n.d.), and the industry averages of publicly traded

companies are available on the Reuters website (Reuters, n.d.). However, for privately held companies, financial data is not publicly available. Therefore, the business decision-makers or contracting officers in the military must ask the business owners of a potential private contractor to present financial statements, including footnotes and tax returns for the past three to five years in order to conduct a financial analysis of the company. These selected best practices ratios shown in Table 8 can be applied to real financial data. An example of a five-year ratio analysis compared to a five-year industry average is illustrated in Table 9. Based on previous research, the purpose of using these selected ten ratios is to illustrate the ratio analysis process to determine the financial health of a company.

Table 9. Company A Five-Year Financial Statement Ratio Analysis

Category	Ratios	2012	2013	2014	2015	2016	Five Year Industry Average
Liquidity (solvency) Ratios	Current Ratio	0.70	0.76	0.75	0.79	0.85	3.98
	Quick Ratio	1.12	1.17	1.25	1.42	1.23	1.80
Asset Management (Operating Efficiency) Ratios	Inventory Turnover Ratio	2.90	3.12	3.26	3.50	4.90	5.97
	DSO Ratio	46.23	45.97	47.00	52.10	39.00	30.07
Debt Management Ratios	Debt Ratios	3.93	1.72	3.11	1.55	1.87	1.27
	Time Interest Earned Ratio	7.40	7.01	6.50	7.11	6.10	8.93
Profitability Ratios	ROA Ratio	7.10	7.32	7.50	5.70	6.30	8.90
	ROE Ratio	11.89	11.30	12.60	38.50	13.20	18.18
Market Value Ratios	EPS Ratio	1.00	1.87	1.32	2.10	0.97	1.44
	P/E Ratio	33.86	32.01	33.90	32.71	39.01	34.95

**a.        *Liquidity (Solvency) Ratios***

Liquidity ratios, also known as solvency ratios, measure short-term solvency or the capability of a company to pay for its short-run debt obligations when they become payable. The five years of Current Ratios and Quick Ratios of Company A along with industry averages are illustrated in Table 9. During 2016, the company has \$0.85 of current assets for each \$1 of current liabilities and \$1.23 of cash and near cash assets for every \$1 of current liabilities. The company's liquidity position is weak because it is below the industry average. A company with a strong liquidity position should have a higher liquidity ratio.

**b.        *Asset Management (Operating Efficiency) Ratios***

Asset management ratios, also known as operating efficiency ratios, measure how well a company is using its assets, which include capital investments, stock, inventory, and PP&E, to generate sales (Balatbat, 2011). Inventory turnover ratios show how well a company is managing its inventory. The five years of Inventory Turnover Ratios and Days Sales Outstanding (DSO) Ratios of Company A along with industry averages are illustrated in Table 9. Inventory turnover for all five years is below the industry average of 5.97, which indicates that the company might have poor control over inventory and might have stored or obsolete inventory. DSO measures the total number of days between the date of sale on credit and the date of cash collection from customers. In other words, DSO indicates the average number of days after making a credit sale before receiving the cash. The average collection period should be low. The DSO for each year shown in Table 9 is above the industry average, which may not be a good sign. It may indicate that the company's collection on sales is very slow. This may be due to a poor credit policy.

**c.        *Debt Management Ratios***

Long-term debt ratios measure the ability of a company to meet long-term financial requirements (Leve, 1974). The debt ratio measures the percentage of each \$1 of assets financed with debt. Companies usually prefer a low debt ratio because the risk associated with a high debt ratio is higher. Some companies, on the other hand, are comfortable with a high debt ratio. The five years of Debt Ratios and Times Interest

Ratios of Company A along with industry averages are illustrated in Table 9. Rendon (2016) states that if a company has a high debt ratio, there is higher risk involved; the higher the risk, the more potential a company has to go bankrupt if it cannot pay its debt. That is why some companies prefer low debt ratios (Rendon, 2016). The Debt Ratios shown in Table 9 are higher than the industry averages, and this may be an indication that the financial health of those companies may have a higher financial risk. The TIE ratio identifies the ability of a company to pay interest on its debt, so a higher ratio is preferred. In 2012, the company has \$7.40 of earnings before interest and taxes. This indicates that the company has \$7.40 earnings to cover every one U.S. dollar of interest owed on its long-term debt. Company A's TIE shows a decreasing trend and is below the industry average of \$8.93 for all the years. If a downward trend continues for the TIE, this could cause a company not be able to pay the interest owed on its long-term debt. This is not a good sign for Company A.

***d. Profitability Ratios***

Profitability ratios are used to measure sales results and to show a company's ability to manage expenses and thus to maximize its profits consistently (Nworgu, 2007). ROA measures the profit a company will make from each \$1 invested in its total assets. ROE shows how much the company is earning in cents for each \$1 of shareholders' investment. The five years of ROA ratios and ROE ratios of Company A, along with industry averages, are illustrated in Table 9. During 2016, the company ROA was \$6.30, which means that the company earned \$6.30 for each \$1 of its assets. This is below the industry average of \$8.90. Similarly, in 2016, the company ROE was \$13.20, which means the company earned \$13.20 for each \$1 of its owner's investment (equity). This ratio is also below the industry average of \$18.18. Higher ROA and ROE ratios are preferred because they show better profitability and a better ability to finance its assets to increase the company's earnings on shareholders' equity.

***e. Market Value Ratios***

Market value ratios, as described by Brigham and Houston (2007), "bring in the stock price and give us an idea of what investors think about the firm and its future



prospects” (p. 86). These ratios also determine the value of the share price of a publicly traded company’s stock (Davis & Peles, 1993). The five years of EPS ratios and P/E ratios of Company A, along with industry averages, are illustrated in Table 9. The EPS ratios measure profit earned per each outstanding share of common stock. During 2012, the company earns \$665 million, and in the same year, the company has \$665 million common shares of stock. Its EPS is \$1 per share as compared to the \$1.44 industry average. P/E ratios indicate how much investors are willing to pay for that stock. This company trades at \$ 23 per share during 2012, which means that its EPS is \$ 1 per share. The P/E ratio formula is stock price divided by EPS. The P/E ratio is  $\$23/\$1=\$23$  compared against the P/E industry average of \$34.95. Usually, the higher EPS and P/E ratios are preferred for some companies because of the higher return associated with higher P/E ratios. Some investors are willing to pay more for the stock than others, depending on whether the investor is conservative or comfortable with risk. The higher P/E ratio indicates that the company stock has a greater potential for a higher return.

## **5. Bankruptcy Ratio Analysis**

Bankruptcy is a legitimate proceeding that indicates a company’s inability to repay its outstanding debt. Altman’s (2000) Z-Score Model is used to gauge the bankruptcy potential of Company A. The Z-Score formula is illustrated in Figure 24. A Z-Score smaller than 1.1 indicates that a firm will become bankrupt in the future, and a Z-Score greater than 2.6 indicates that the company will not become bankrupt (Grant et al., 2016). Gates (1993) highlights, however, the limitation of Z-Score values between 1.10 and 2.60, which do not predict bankruptcy. This area can be termed a gray area for a company.

Figure 24. Z-Score Formula to Detect Bankruptcy. Source: Altman (1968).

(I)	$Z = .012X_1 + .014X_2 + .033X_3 + .006X_4 + .999X_5$
where	$X_1 = \text{Working capital/Total assets}$
	$X_2 = \text{Retained Earnings/Total assets}$
	$X_3 = \text{Earnings before interest and taxes/Total assets}$
	$X_4 = \text{Market value equity/Book value of total debt}$
	$X_5 = \text{Sales/Total assets}$
	$Z = \text{Overall Index}$

Five years of calculations of Company A’s Z-Score are presented in Table 10. There are no signs of bankruptcy during 2012, 2015, and 2016; however, Company A falls in the gray area during 2013 and 2014 because the Z-Score remains between 1.1 and 2.6 during these years.

Table 10. Five Years of Z-Score Calculations for Company A

Altman’s Z-Score	2012	2103	2104	2105	2106
0.12 *(X1)	0.443	0.213	0.821	0.431	0.432
0.014*(X2)	0.351	0.451	0.341	0.871	0.861
0.033 *(X3)	2.01	0.231	0.341	0.891	0.561
0.006 *(X4)	0.561	0.431	0.621	0.761	0.761
0.999 *(X5)	0.391	0.123	0.432	0.431	0.541
Z-Score	3.756	1.449	2.556	3.385	3.156
Bankruptcy Limitations	Z > 2.6	Z > 2.6	Z > 2.6	Z > 2.6	Z > 2.6

## 6. Fraud Ratio Analysis

The Beneish (2013) model is used to calculate the Company A’s M-Score, which encompasses eight fraud ratios including General Sales Growth (GSI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), Depreciation Index

(DEPI), Sales and General and Administrative Expenses Index (SGAI), Total Accrual to Assets or Accruals (TATA), and Leverage Index (LEVI). These eight fraud ratios are shown in Figure 25. The formulas used to calculate the eight fraud ratios are illustrated in Figure 26. Omar et al. (2014) state that an M-score greater than -2.22 suggests that a company manipulates its earnings.

$$\begin{aligned}
 M\text{-score} = & -4.84 + 0.920(\text{DSR}) + 0.528(\text{GMI}) \\
 & + 0.404(\text{AQI}) + 0.892(\text{SGI}) \\
 & + 0.115(\text{DEPI}) - 0.172(\text{SGAI}) \\
 & + 4.679(\text{Accruals}) - 0.327(\text{LEVI}).
 \end{aligned}$$

Figure 25. M-score Formula for Fraud Analysis.  
Source: Beneish et al. (2013).

Exhibit A1. Description of Variables and Rationale for Inclusion		
Variable	Description (numbers in brackets are Compustat codes)	Rationale
DSR	$(\text{Receivables}_t [2]/\text{Sales}_t [12]) / (\text{Receivables}_{t-1} / \text{Sales}_{t-1})$	Captures distortions in receivables that can result from revenue inflation
GMI	Gross margin <sub>t-1</sub> /Gross margin <sub>t</sub> , where Gross margin = 1 - Costs of goods sold [8]/Sales	Deteriorating margins predispose companies to manipulate earnings
AQI	$[1 - (\text{PPE}_t + \text{CA}_t) / \text{TA}_t] / [1 - (\text{PPE}_{t-1} + \text{CA}_{t-1}) / \text{TA}_{t-1}]$ , where PPE is net [8], CA is current assets [4], and TA is total assets [6]	Captures distortions in other assets that can result from excessive expenditure capitalization
SGI	$\text{Sales}_t [12] / \text{Sales}_{t-1}$	Managing the perception of continuing growth and capital needs predisposes growth companies to manipulate sales and earnings
DEPI	Depreciation rate <sub>t-1</sub> /Depreciation rate <sub>t</sub> , where Depreciation rate equals Depreciation [14-65]/(Depreciation + PPE [8])	Captures declining depreciation rates as a form of earnings manipulation
SGAI	$(\text{SGA}_t [189] / \text{Sales}_t [12]) / (\text{SGA}_{t-1} / \text{Sales}_{t-1})$	Decreasing administrative and marketing efficiency (larger fixed SGA expenses) predisposes companies to manipulate earnings
Accruals <sup>3</sup>	$(\text{Income before extraordinary items [18]} - \text{Cash from operations [308]}) / \text{Total assets}_t [6]$	Captures where accounting profits are not supported by cash profits
LEVI	Leverage <sub>t</sub> /Leverage <sub>t-1</sub> , where Leverage is calculated as debt to assets: $(5 + 9) / 6$	Increasing leverage tightens debt constraints and predisposes companies to manipulate earnings

Figure 26. Explanation of M-score's Fraud Ratios.  
Source: Beneish et al. (2013).

The five years of data for Company A, encompassing eight fraud ratios and the M-score, are illustrated in Table 11.

Table 11. Five Years of M-Score Calculations for Company A

Beneish's Eight Fraud Ratio	2012	2103	2104	2105	2106	Manipulation measurements
DSRI	0.981	0.976	1.341	1.121	0.792	1.465 < 1.031
GMI	0.729	1.034	1.001	0.621	0.988	1.193 < 1.014
AQI	0.213	0.321	0.698	0.432	1.321	<1
SGI	1.932	1.621	0.651	0.876	0.931	1.607 < 1.134
DEPI	0.681	0.291	0.321	0.555	0.453	< 1
SGAI	0.001	0.021	0.031	0.112	0.310	< 1
LVGI	0.796	0.999	0.951	0.789	0.935	<1
TATA	-0.392	-0.792	-0.119	-0.894	-0.942	<1
M-Score	-3.76	-5.82	-3.05	-6.92	-6.94	<-2.2
<b>Fraud Limit less than -2.22</b>	<b>-2.22</b>	<b>-2.22</b>	<b>-2.22</b>	<b>-2.22</b>	<b>-2.22</b>	

The analysis suggests that in all years, the M-Score was <-2.22. Therefore, the company is likely not manipulating their earnings. Only the SGI individual fraud ratio in 2012 (shown in yellow) was above the fraud limit of 1.607 for that particular fraud ratio, which may have a reasonable explanation, so there should be no concerns. The following section discusses the internal control framework analysis process.

### C. INTERNAL CONTROL FRAMEWORK ANALYSIS PROCESS

Based on the analysis, the research of internal controls suggests that all of the three objectives and five components with the related 17 principles are important for the

effective internal control of an organization (Lewsi, 1985; GAO, 2001; AICPA, 2002, GAO, 2005; Agbejule & Jokipii, 2008; The Secretary of Navy, 2008; Ionescu, 2011; Curtis, 2012; Janvrin et al., 2012; Whittington & Pany, 2012; COSO, 2013; GAO, 2014; OMB, 2014). As discussed in the literature review, the GAO (2005) report recommends six factors for effective internal controls. These six factors include enhanced guidance and implementation methods, a vigilant approach to monitor program objectives, management's support for the organization's goals, risk assessment with appropriate cost benefit analysis, an evaluation process by the management to assess design and operation, and accountability of management (GAO, 2005).

The U.S. DOD established the managers' internal control programs for effective internal controls within its agencies. The purpose of the U.S. DOD instruction is to evaluate mission built-in risks, record and design controls, assess design and operation efficiency, detect control deficiencies, prepare reports, execute prompt responses, and monitor these corrective programs (DOD, 2013).

A template of internal controls based on the COSO framework (2013), scholarly articles, OMB reports, and U.S. GAO reports has been prepared as a reference for Pakistan Army financial management officers to design and operate effective internal controls. The template encompassing definition, importance, objectives, components, principles, limitations of internal controls, and GAO's (2005) six factors of internal controls is illustrated in Table 12.

Table 12. Internal Control Template for Pakistan Army  
Financial Management Officers

Internal Controls (IC) Quick Reference Template for Pakistan Army Financial Management Officers (Derived from COSO, OMB, and U.S. GAO Reports)				
Definition	Importance	3 Objectives	5 Components and 17 Principles	Limitations
<p>A process effected by an entity’s board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance. IC in a broad sense includes a plan of organization, methods, and procedures adopted by management to meet its goals.</p>	<p>IC applies to all entities (large, medium &amp; small). <b>ICs prevent, detect, correct, or minimize:</b></p> <ul style="list-style-type: none"> <li>Accounting errors</li> <li>Risk of asset loss</li> <li>Irregularities</li> <li>Illegal acts</li> <li>Intentional or unintentional fraud</li> </ul> <p><b>ICs Enhance</b></p> <ul style="list-style-type: none"> <li>Efficiency</li> <li>Effectiveness</li> <li>Alertness for problems</li> <li>Rules compliance</li> <li>Management alertness</li> <li>Designing, applying, and executing ICs</li> <li>External stakeholders’ confidence</li> <li>Ability to mitigate inefficient, ineffective, and redundant controls</li> </ul>	<ul style="list-style-type: none"> <li><b>Operation.</b> Organizations’ efficiency of operations for effective financial performance and measures to safeguards assets</li> </ul>	<p><b>Control Environment</b></p> <ol style="list-style-type: none"> <li>Management Integrity</li> <li>Entity IC System</li> <li>System to assign and delegate responsibility</li> <li>Recruitment, development, and retention of individuals</li> <li>Accountability of IC responsibilities</li> </ol>	<ul style="list-style-type: none"> <li>Reasonable assurance and no complete assurance</li> <li>Cannot eliminate all errors</li> <li>Human decisions may be wrong or biased</li> <li>Errors/ Omissions in selection or application of objectives</li> <li>Override principles</li> <li>Intent to dodge the system</li> <li>External factors</li> </ul>
		<ul style="list-style-type: none"> <li><b>Reporting.</b> Internal and external financial reporting encompassing reliability, timeliness, transparency, or other terms set forth by regulators, recognized standards setters, or the entity policies</li> </ul>	<p><b>Risk Assessment</b></p> <ol style="list-style-type: none"> <li>Identification of risk and risk tolerance</li> <li>Response to risk</li> <li>Consider potential for fraud</li> <li>Identify changes affecting IC</li> </ol>	
		<ul style="list-style-type: none"> <li><b>Compliance.</b> Compliance to rules and regulations applicable to the entity.</li> </ul>	<p><b>Control Activities</b></p> <ol style="list-style-type: none"> <li>Design IC</li> <li>Design info. system</li> <li>Implement control activities</li> </ol>	
			<p><b>Information and communications</b></p> <ol style="list-style-type: none"> <li>Use quality information</li> <li>Internal Communication</li> <li>External Communication</li> </ol>	
			<p><b>Monitoring Activities</b></p> <ol style="list-style-type: none"> <li>Monitoring of IC System and evaluate results</li> <li>Remediate identified IC deficiencies on a timely basis</li> </ol>	
<p><b>GAO (2005) six factors for IC</b> include enhanced guidance and implementation methods, a vigilant approach to monitor program objectives, management’s support for the organization’s goals, risk assessment with appropriate cost benefit analysis, an evaluation process by the management to assess design and operation, and accountability of management</p>				

## 1. Interrelationship among Internal Controls Components

There is an interrelationship among all five components in the COSO internal control integrated framework. This section provides an example of how the internal control components are interrelated. An illustration of the first example of the control environment and the first internal control principle is shown in Table 13. In this example the control environment, the information and communication, and the monitoring activities of internal control examples are illustrated.

Table 13. Interrelationship of the Control Environment, the Information and Communication, and the Monitoring Activities of the Internal Control System. Source: COSO (2013).

Internal Control Component	Control Environment		
Principle	1. The organization demonstrates a commitment to integrity and ethical values.		
Controls embedded in other components may affect this principle	Human Resources reviews employees' confirmations to assess whether standards of conduct are understood and adhered to by staff across the entity	Management obtains and reviews data and information underlying potential deviations captured in whistleblower hotline to assess quality of information	Internal Audit separately evaluates Control Environment, considering employee behaviors and whistleblower hotline results and reports thereon
	Control Environment	Information & Communication	Monitoring Activities

An illustration of the interrelationship between the monitoring activities and internal control principle 16 is shown in Table 14. In this example, the monitoring activities, the control environment, and the risk assessment of internal control examples are illustrated.

Table 14. Interrelationship of the Monitoring Activities, the Control Environment, and Risk Assessment of the Internal Control System.  
Adapted from COSO (2013).

Internal Control Component	Monitoring Activities		
Principle	16. Management should establish and operate monitoring activities to monitor the internal control system and evaluate the results		
Controls embedded in other components may affect this principle	Management created a conducive environment by training the salesmen/women to ensure their competence and integrity. Management assigned them responsibility and authority to implement the policy of selling only to DOD and military persons at a store.	There are three risks associated with accomplishment in this monitoring activity: 1) the salesperson may override the policy and sell inventory to his/her civilian friends or relatives; 2) the salesperson may neglect or fail to check the military ID of the customer; 3) salesperson may not be competent enough to differentiate between a fake and an actual military ID and may fall victim to a fraudster	The camera installed to record activities in the store helps management to evaluate and determine the efficient functioning of internal controls by a competent salesperson. Continuous monitoring by management through the camera is a deterrent for the salesperson and customers to commit fraud and minimize loss of assets.
	Control Environment	Risk Assessment	Monitoring Activities

The audit readiness analysis process best practices are discussed in the following section.

**D. AUDIT READINESS ANALYSIS PROCESS**

This section reviews the best practices of U.S. DOD audit readiness introduced in Chapter II. These best practices lead to recommendations for creating an educational



guide for Pakistan Army financial management officers to prepare their military units to become audit ready.

## **1. Importance of U.S. Audit Organizations and U.S. Auditing Standards**

The American Institute of Certified Public Accountants deals with audits of private companies. However, it also provides relevant auditing guidance to enhance the understanding of auditees. The Public Company Accounting Oversight Board also provides standards related to audit procedures, the auditor's responsibilities, planning of audit and risk assessment, audit evidence, and documentation and audit of internal controls. These practices will assist in understanding the auditability of publicly traded companies. The GAGAS (2011) provides best guidelines to prepare a military organization for audits. The chapters in the GAGAS include foundations and ethical principles, auditing standards, applicability, and audit types and attestations that are important for understanding auditability. Furthermore, professional ethics, integrity, and independence, financial audits, and engagements of attestations are also important chapters in the GAGAS. In addition, GAGAS standards for fieldwork, including reasonable assurance, risks, audit evidence, recordkeeping, and reports related to performance, are comprehensive.

Government Accountability Office (GAO) reports and Inspector General (IG) reports help to ensure the accountability and enhance efficiency and effectiveness. The auditing standards of the AICPA, PCAOB, and GAGAS provide the best practices for conducting audits in industry and in the government.

## **2. Importance of Audit Readiness**

Audit readiness is important to enhance the confidence of the public and assure the public that the military leadership is capable of ensuring transparency in its management of taxpayers' money. Auditability assists senior leadership in assessing the efficiency of their military units, eventually helping to deter fraud in their organizations.

### **3. Types of Audits**

U.S. DOD best practices regarding internal audits, financial audits, compliance audits, and operational audits are detailed and comprehensive. An internal audit is related to the design and operation of an organization's internal controls to enhance efficiency and effectiveness. Financial audits consist of the audit of financial statements. Operational audits gauge the efficiency and effectiveness of an organization. Compliance audits test an organization regarding compliance of rules and regulations. Audit steps include planning the audit; obtaining an understanding of the client and the client's environment and internal controls; assessing the risks of material misstatement and designing further audit procedures; performing further procedures; completing the audit; and forming an opinion as well as issuing the audit reports. The relationships among audit objectives, risk of material misstatement, and audit procedures are illustrated in Figure 18.

### **4. Audit Readiness Best Practices**

U.S. DOD best practices include the Financial Improvement Audit Readiness strategy and FIAR Tier I and Tier II courses. Figure 21 illustrates details of the FIAR Tier I and II courses (Crouse, 2012). Figure 22 explains the FIAR strategy of the U.S. Navy (Office of the Undersecretary of Defense, 2015). Both figures are shown in Chapter II. The U.S. Army Financial Management Command (USAFMCOM) ensures army-wide audit readiness, and its organization is shown in Appendix H (Coburn & Cosby, 2016).

U.S. comptrollers have issued a checklist for the U.S. Navy that can be found at [http://comptroller.defense.gov/Portals/45/documents/fiar/Commanders\\_Audit\\_Readiness\\_Checklist.pdf](http://comptroller.defense.gov/Portals/45/documents/fiar/Commanders_Audit_Readiness_Checklist.pdf) ("Financial improvement and audit readiness directorate," 2012). The auditability triangle components include competent personnel, capable processes, and effective internal controls, which are important to prepare an organization to be audit ready (Rendon & Rendon, 2015).

Based on U.S. best practices, two templates have been prepared to assist in understanding the auditor and auditee perspectives. The auditor's framework including

importance of audit readiness, U.S. auditing standards, types of audits, stages of an audit, audit opinion, audit evidence and documentation, audit procedures, and professional ethics is shown in Table 15. An auditee's framework encompassing the auditee's responsibility, U.S. best practices, auditability triangle, training of auditees, and audit readiness checklist is shown in Table 16. As an illustration, Pakistan Army financial management officers need to have the appropriate skills and education to prepare Army units for audits. It is important to know which documents are needed and what procedures must be followed in order to be audit ready.

Table 15. Auditor’s Framework to Conduct an Audit

Importance of Audit Readiness	U.S. Auditing Standards	Audit Types	Stages of An Audit	Auditor’s Opinion	Audit Evidence and Audit Documentation	Audit Procedures	Professional Ethics
<ul style="list-style-type: none"> <li>• Promotes accountability of taxpayer’s money</li> <li>• Develops public confidence</li> <li>• Deters fraud</li> <li>• Ensures managers obtain accurate financial information to make decisions</li> <li>• Gives assurance to political leadership that military is good steward of public funds</li> </ul>	<p><b>AICPA.</b> Auditing standards for private companies</p> <p><b>PACOAB.</b> Auditing standards for public companies</p> <p><b>GAGAS.</b> Governmental auditing standards</p>	<p><b>Internal Audits.</b> Evaluation to ensure efficiency, and effectiveness</p> <p><b>Compliance Audits.</b> Compliance with rules, laws, standards, and regulations</p> <p><b>Financial Audits.</b> Audit of financial statements</p> <p><b>Operational Audits.</b> Focus on efficiency, effectiveness, and economy of operations</p>	<ul style="list-style-type: none"> <li>• Plan the audit</li> <li>• Obtain understanding of client, client’s environment, and IC</li> <li>• Assess risk of material misstatement</li> <li>• Perform further audit procedures</li> <li>• Complete the audit</li> <li>• Form an opinion and issue the audit report</li> </ul>	<p><b>Unqualified.</b> Compliance with GAAP and consistency in accounting principles</p> <p><b>Qualified.</b> When one or more items of FS are not presented as per accounting principles</p> <p><b>Adverse.</b> When FS are not fairly presented</p> <p><b>Disclaimer.</b> Unable to determine fairness of FS due to scope limitations</p>	<ul style="list-style-type: none"> <li>• Obtain sufficient appropriate audit evidence to support the opinion expressed in the auditor’s report.</li> <li>• Audit documentation also known as working paper, includes record of planning and performance of work, the procedures performed, evidence obtained, and conclusion reached by the auditors</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection of records or documents</li> <li>• Inquiry</li> <li>• External information</li> <li>• Inspection of tangible assets</li> <li>• Observation</li> <li>• Recalculation</li> <li>• Performance</li> <li>• Analytical procedures based on professional judgement</li> <li>• Scanning of data</li> </ul>	<ul style="list-style-type: none"> <li>• Responsibilities</li> <li>• Public Interest</li> <li>• Integrity</li> <li>• Objectivity</li> <li>• Independence</li> <li>• Due Care</li> <li>• Scope and nature of service</li> </ul>

Adapted from Whittington and Pany (2012); AICPA (n.d.); PCAOB (n.d.); and GAGAS (n.d.).

Table 16. Auditee’s Educational Framework to Prepare for Audits

Auditee’s Responsibility	U.S. Best Practices	Auditability Triangle	Training of Auditees	Audit Readiness Checklist
<ul style="list-style-type: none"> <li>• Prepare documents</li> <li>• Have effective internal controls</li> <li>• Educate staffers</li> <li>• Follow auditing standards</li> <li>• Know steps and procedures of audits</li> <li>• Provide fair presentation of financial statements</li> <li>• Cooperate with auditors and assist them in auditing</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare in accordance with GAGAS and AICPA</li> <li>• Use audit readiness checklist issued to all services</li> <li>• Follow OMB A-123</li> <li>• Follow FIAR Tier I and Tier II</li> <li>• Follow FIAR strategy for four prioritized waves to achieve full financial statement audit</li> <li>• Use U.S. Army Financial Management Command procedures to ensure audit readiness</li> </ul>	<p><b>Personnel</b></p> <ul style="list-style-type: none"> <li>• Educated</li> <li>• Trained</li> <li>• Experienced</li> </ul> <p><b>Processes</b></p> <ul style="list-style-type: none"> <li>• Institutionalized</li> <li>• Measured</li> <li>• Improved</li> </ul> <p><b>Internal Controls</b></p> <ul style="list-style-type: none"> <li>• Enforced</li> <li>• Monitored</li> <li>• Reported</li> </ul>	<ul style="list-style-type: none"> <li>• FIAR- like courses</li> <li>• Seminars</li> <li>• Workshops</li> <li>• Training by internal auditors</li> <li>• Designating audit officers in every military unit to conduct internal audits</li> <li>• Publishing of small and simplified auditability pamphlets</li> <li>• Education of staff who are responsible for documentation</li> <li>• Education of officers on financial management</li> <li>• Motivational training on compliance of rules and regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Prepared list for all types of audits as per steps of audits</li> <li>• Financial statement checklist and supporting documents</li> <li>• Rules and regulations</li> <li>• Auditor’s procedures</li> <li>• Audit evidence and audit documentation</li> <li>• Identified requirements of auditors</li> </ul>

Adapted from Whittington and Pany (2012); AICPA (n.d.); PCAOB (n.d.); and GAGAS (2011).

The following section discusses the implications for Pakistan.

## **E. IMPLICATIONS FOR PAKISTAN**

This section discusses the implications for Pakistan related to financial statement analysis, internal controls, and audit readiness.

### **1. Financial Statement Analysis Application in Pakistan**

Financial statement analysis to assess a publicly traded company's financial health can assist financial management officers of the Pakistan Army prior to decision-making by the senior military leadership during procurements of military equipment. These analyses are also applicable to business decisions related to administrative equipment purchasing. For example, Army HQ may desire to choose a vendor that offers Apple, Dell, or Lenovo products to finalize a bulk purchase of computers for HQ or any other military institution. Financial statement analysis can help determine the financial health of a potential contractor, its bankruptcy potential, and fraud related aspects for better decision-making to select the appropriate contractor. Furthermore, prior to the purchase of military equipment such as tanks, artillery guns, radars, helicopters, or any other required military equipment, financial statement analysis can provide a financial picture of a company from which military equipment is being purchased.

### **2. Internal Controls Application in Pakistan**

The COSO Framework (2013) and GAO (2014) internal controls' criteria for federal governments can be useful for application in the Pakistan Army. The Pakistan Army can create its own internal control framework based on U.S. best practices being followed in the corporate sector and U.S. DOD. Similarly, effective internal controls can enhance the efficiency of the Pakistan Army, can ensure accountability, and may mitigate the risk of errors and fraud. The importance and effectiveness of internal controls cannot be emphasized enough. The previously mentioned templates may enhance the understanding of Pakistan Army financial management officers to implement effective internal controls.

### **3. Audit Readiness Application in Pakistan**

The U.S. comptroller issued best practices and audit readiness plans to be followed by the U.S. military for all services to become audit ready in accordance with GAGAS for September 2017 audits. Such plans, standards, and checklists of the U.S. DOD can be considered for application in Pakistan. Apart from internal audits by independent auditors of the Ministry of Defense of Pakistan, the Pakistan Army may also organize and strengthen its audit readiness system prior to an audit by a Local Audit Officer. The U.S. Army restructured USAFMCOM to examine and execute Army-wide financial management functions. The Pakistan Army may also establish its Financial Management Command to supervise financial management, internal controls, and audit readiness. Introduction of a FIAR-like plan may assist in the training of Pakistan Army financial management officers who prepare their units and headquarters for audit readiness. Tables 15 and 16 show the audit readiness educational frameworks from the standpoints of an auditor and an auditee, respectively. These tables will assist Pakistan Army financial management officers to prepare their units for audits. The following section discusses the recommendations based on the analysis in this research study.

## **F. RECOMMENDATIONS BASED ON ANALYSIS**

The following sections discuss the recommendations for the Pakistan Army, based on analysis regarding best practices for financial statement analysis, internal controls, and audit readiness.

### **1. Financial Analysis Recommendations**

This section discusses financial analysis recommendations. Based on the framework provided, it is recommended that the Pakistan Army financial management officers understand and follow the complete process of financial statement analysis. These officers can determine the financial health of a company upon completion of all the processes discussed in the analysis section of this chapter. The following steps are recommended for financial statement analysis of a potential contractor.

**a. *Gathering Financial Data***

As discussed in the analysis section, the Pakistan Army financial management officers should consider obtaining five years of data from all the financial statements of a potential contractor. For a publicly traded company, financial data is readily available at the SEC website and the company's website, which provides its annual reports (10 K). This data can also be found on the Mergent website, and industry averages of publicly traded companies are available from the Reuters website. Financial data for privately held companies, however, is not publicly available. Therefore, the business decision-makers or contracting officers in the military must ask the business owners of a potential private contractor to present financial statements, including footnotes and tax returns, for the past three to five years in order to conduct a financial analysis of the company.

**b. *Trend Analysis of Financial Statements***

The Pakistan Army financial management officers should consider obtaining five years of data from a potential contractor to conduct a trend analysis. The trend analysis should be conducted for the balance sheet, the income statement, and the statement of cash flows. The examples of trend analysis are illustrated in Tables 2, 3, 4, and 5, and these tables may assist Pakistan Army financial management officers when conducting a trend analysis of real world companies.

**c. *Summarizing Horizontal and Vertical Analyses of Financial Statements***

Upon completion of a trend analysis, the Pakistan Army financial management officers should conduct horizontal and vertical analyses. The examples of vertical analysis and horizontal analysis are illustrated in Tables 6 and 7. These analyses may assist them in understanding the performance of a company in different time periods. Furthermore, vertical analysis may assist them in identifying fluctuations in different accounting items. This analysis also helps determine the relationship of assets on the balance sheet with other items in terms of percentage. This analysis may also help assess the relationships between revenue and other items in terms of percentage on the income statement and the statement of cash flows.



**d. Financial Health Factors**

Pakistan Army financial management officers should consider the financial health factors discussed in the literature review that are already incorporated in the income statement and balance sheet. For example the inventory, accounts receivable, working capital (current assets and current liabilities), and fixed assets are all part of balance sheet. In addition, the net income, sales activity (revenues), and the operating environment are all related to the income statement.

**e. Ratio Analysis**

Ratio analysis is very important to determine the financial health of a company. Based on previous research and as discussed in the analysis section of this chapter, two ratios are recommended from each of the five categories of ratios. The calculation procedures and usefulness of these ten ratios are shown in Table 8 previously shown in this chapter. Pakistan Army financial management officers can calculate these financial ratios by using the formulas shown in Table 8.

**f. Bankruptcy Analysis**

Altman's Z-Score (2000) is recommended for use by the Pakistan Army financial management officers for the calculation of the bankruptcy potential of a company. Figure 25 shown earlier in this chapter illustrates the Altman Z-Score formula. The Pakistan Army financial management officers should first calculate the values of X1, X2, X3, X4, and X5 and then apply these calculations in the Z-Score formula. Upon completion of the calculations for the five years, these calculations should be compared with the bankruptcy limitations. A Z-Score smaller than 1.1 indicates that a firm will become bankrupt in the future, and a Z-Score greater than 2.6 indicates that the company will not become bankrupt (Grant et al., 2016).

**g. Fraud Ratio Analysis**

Beneish's (2013) M-Score is recommended for use by the Pakistan Army financial management officers in calculating the fraud potential of a company. The M-Score formula is shown in Figure 25. The eight fraud ratios and the formulas are shown

in Figure 26. The Pakistan Army financial management officers should calculate the eight fraud ratios using the formulas shown in Figure 26, and then apply these formulas to calculate the M-Score as shown in Figure 25.

***h. Financial Statement Framework Chart for Pakistan Army Financial Management Officers***

The financial analysis framework for Pakistan Army financial management officers encompasses all the previously mentioned steps to determine the financial health of a publicly traded company is presented in Table 17. The Financial Health Factors (FHF) are illustrated in this table and are identified by (FHF). This framework will assist Pakistan Army officers in their assessment to determine the financial health of a potential contractor. The best practices for Pakistan Army financial management officers for the calculation of financial ratios during the evaluation process of financial statement analysis are shown in Table 8 previously discussed in this chapter. The following section discusses the internal control recommendations.

Table 17. Financial Analysis Framework for Pakistan Army  
Financial Management Officers

Financial Analysis Framework for Pakistan Army Financial Management Officers to Determine the Financial Health of a Publicly Traded Company								
Trend Analysis (Comparison of Financial Statements' Data for five years)								
Balance Sheet (BS)	Assets	Inventory (FHF)	Accounts Receivable (FHF)	Liabilities & Debts	Other items, like Fixed Assets & Working Capital (FHF), can be included			
Income statement (IS)	Revenue (Sales Activity FHF)	Cost (direct or indirect)	Net Income (FHF)	Other items, like COGS, Operating income, SG&A, income tax, interest expense, Operating Environment (FHF) etc., can be included.				
Statement of Cash Flows (CF)	Operating Positive good sign	Investing Negative Good Sign	Financing Negative Good sign	+, -, - is ideal combination				
Horizontal Analysis	Select Base year and compare FS' items with base year. Draw conclusions & note trends.							
Vertical Analysis	Select assets as base for BS and Revenue as base for IS and CF. Compare main items of BS with Assets in % and Compare IS and CF items with Revenue in %. Draw relevant conclusions.							
Ratio Analysis	Liquidity (solvency) Ratios	Asset Management Ratios	Debt Management Ratios	Profitability Ratios	Market Value Ratios			
	Quick Ratio	Inventory Turnover	Debt Ratios	ROA	EPS			
	Current Ratio	DSO	Times Interest Earned Ratio	ROE	Price of EPS			
	Compare with Industry averages (Reuters Online). Draw Conclusions about solvency, efficiency, debt management, profitability, and market value							
Bankruptcy Analysis								
Altman Z-Score	$Z = 0.12 \cdot (X1) + 0.014 \cdot (X2) + 0.033 \cdot (X3) + 0.006 \cdot (X4) + 0.999 \cdot (X5)$							
	The Z-Score smaller than 1.1 indicates that a firm will become bankrupt in the future and a value greater than 2.6 indicates that the company will not become bankrupt.							
	Z-Score in-between 1.1 and 2.6 indicates gray area							
Fraud Analysis								
Variables	GS I	GMI	AQI	SGI	DEPI	SGAI	LVGI	TATA
Beneish M-Score	$M = -4.84 + 0.920 (DSR) + 0.528 (GMI) + 0.404 (AQI) + 0.892 (SGI) + 0.115 (DEPI) - 0.172 (SGAI) + 4.679 (TATA) - 0.327 (LEVI)$							
Criteria	M-Score bigger than -2.22 suggests that a company may be manipulating its earnings							

## **G. INTERNAL CONTROL RECOMMENDATIONS**

This section recommends the U.S. best practices related to internal controls for the Pakistan Army.

### **1. Internal Control Framework for Pakistan Army**

This section recommends internal control framework for Pakistan Army.

#### ***a. The COSO Framework Implementation***

The three objectives and five components with the 17 relevant principles from the COSO framework are recommended to ensure effective internal controls for the Pakistani Army. The Pakistan Army financial management officers should consider designing, implementing, and operating all of the five components to achieve effective internal controls. The 17 principles will assist in establishing an effective internal control system.

#### ***b. Internal Control Template for Pakistan Army***

A template of internal controls is recommended as an easy reference for Pakistan Army financial management officers to design and operate effective internal controls. A template encompassing definition, importance, objectives, components, principles, and limitations of internal controls is illustrated in Table 12 previously discussed in this chapter. In addition to the Pakistan existing internal control system, Table 12 is recommended for implementation in the Pakistan Army to ensure more accountability and efficiency of the Pakistan Army.

#### ***c. Implementation of GAO's (2005) Six Factors by Pakistan Army***

The GAO (2005) report suggests six factors for effective internal controls. These factors can be applied by Pakistan Army financial management officers in their organization to ensure accountability and efficiency. These six factors include enhanced guidance and implementation methods, vigilant approach to monitor the program objectives, management support for the organization's goals, risk assessment with appropriate cost and benefit analysis, evaluation process by the management to assess

design/operation, and accountability of management. These U.S. DOD practices are very useful for implementation in the Pakistan Army.

***d. Interrelationship among Internal Control Components***

It is important for Pakistan Army financial management officers to understand the interrelationship among the various components of internal controls. The templates of interrelated internal controls shown in Tables 13 and 14 are recommended as best practices and as a reference to enhance the understanding of Pakistan Army financial management officers in designing, operating, and executing an effective internal control system in the Pakistan Army. The following section discusses the audit readiness recommendations.

**H. AUDIT READINESS RECOMMENDATIONS**

This section recommends the best practices of the U.S. DOD to be followed by the Pakistan Army for audit readiness. U.S. best practices may assist Pakistan Army financial management offices in enhancing the efficiency of their military organization. The following best practices are recommended.

***a. Realization of Importance of Audit Readiness at All Levels***

Audit readiness is important to enhance the confidence of the public and assure the public that the military leadership is capable of managing taxpayers' money effectively and transparently. Auditability will also assist senior leadership in assessing the efficiency of their military to help deter fraud in their organizations.

***b. Revision of Auditing Standards***

Besides the auditing standards issued by the Military Accountant General (MAAG) and AGP, the Pakistani Army should consider formulating its own auditing standards based on U.S. GAGAS, MAAG, and AGP to enhance its efficiency for audit readiness.

***c. Promotion of Accountability Culture through Governmental Reports***

The government of Pakistan should consider preparing U.S. GAO-type reports for Pakistani federal and provincial agencies to ensure the accountability of all the institutions. The Pakistan Army should also consider preparing U.S. DOD IG-type reports to further strengthen the existing accountability system in the Army.

***d. Getting Ready for Different Types of Audits***

The Pakistan Army should consider adopting the best practices of the U.S. DOD regarding internal audits, financial audits, compliance audits, and operational audits of U.S. DOD audits. Auditees must understand the audit steps that are followed by the auditors, and these steps may assist them to prepare a military organization for audits. These steps include planning an audit and understanding the client, the client's environment, and internal controls. Further steps include assessing the material misstatement risk in designing further audit procedures, performing further procedures, completing the audit, forming an opinion, and issuing the audit reports. Figure 18 may assist the auditees to identify relationships among audit objectives, risk of material misstatement, and audit procedures.

**2. Audit Strategy**

This section recommends audit strategy to prepare military units for audit readiness.

***a. Audit Courses***

The Pakistan Army should also consider organizing courses like the U.S. DOD FIAR Tier I and II courses. The FIAR strategy illustrated in Figure 21 may assist the Pakistan Army to prepare its own strategy to prepare its outfits for audit readiness.

***b. Financial Management Command and Control Structure***

The USAFMCOM ensures Army-wide audit readiness, and its organization is shown in Appendix H. The Pakistan Army may consider raising a command like

USAFMCOM to develop an efficient financial management system in the Pakistan Army.

U.S. comptrollers have issued a checklist for the U.S. Navy that can be found at [http://comptroller.defense.gov/Portals/45/documents/fiar/Commanders\\_Audit\\_Readiness\\_Checklist.pdf](http://comptroller.defense.gov/Portals/45/documents/fiar/Commanders_Audit_Readiness_Checklist.pdf) (“Financial improvement and audit readiness directorate,” 2012). The Pakistan Army may consider a revision of its own checklists based on this U.S. Navy checklist.

***c. Implementation of the Auditability Triangle***

The auditability triangle components that include “competent personnel, capable processes, and effective internal controls” are important to prepare an organization to be audit ready (Rendon & Rendon, 2015, p. 754) previously shown in Chapter II. The auditability triangle is illustrated in Figure 23. All of the military units should consider preparing their templates based on this auditability triangle to ensure accountability.

***d. Maximizing Knowledge about Perspectives of Auditors and Auditees***

Based on U.S. best practices, two templates have been prepared to assist in understanding the auditor’s and auditee’s perspectives. The auditor’s framework, including importance of audit readiness, U.S. auditing standards, types of audits, stages of an audit, audit opinion, audit evidence and documentation, audit procedures, and professional ethics, is illustrated in Table 15. The auditee’s framework, encompassing the auditee’s responsibility, U.S. best practices, auditability triangle, training of auditees, and an audit readiness checklist, is illustrated in Table 16. These two templates will assist Pakistan Army financial management officers in preparing their military units and other military organizations for audit readiness.

**I. SUMMARY**

This chapter drew upon the literature review to select a suitable framework based on best practices to create an educational guide for Pakistan Army financial management officers. This chapter discussed the best processes adopted during the financial statement analysis to determine the financial health of a company. It examined the efficient and

effective internal control system best practices necessary for military organizations. Furthermore, it explored the best practices for audit readiness of a military organization. The analysis section identified the best practices of these three topic areas and discussed the implications for their implementation in the Pakistan Army. Based on the literature review regarding audit readiness, selected suitable best practices from the U.S. DOD were recommended to prepare Pakistani Army units for audit readiness. The best practices recommended regarding financial statement analysis, internal controls, and audit readiness were incorporated into an educational guide for Pakistan Army financial management officers as shown in Appendix I. The following chapter provides a summary of this study and conclusions, as well as recommendations for areas meriting further research.



## **V. SUMMARY, CONCLUSIONS, AND AREAS FOR FURTHER RESEARCH**

### **A. SUMMARY**

This research study prepared a financial statement analysis framework, an internal controls framework, and an audit readiness framework for Pakistan Army financial management officers based on the best practices of industry, the U.S. government, U.S. Department of Defense, and scholarly works. The framework for these three topic areas has been included in the educational guide shown in Appendix I.

Pakistan Army financial management officers are quite knowledgeable about professional military matters related to operational preparedness. However, in a management position, they may find it challenging to understand and handle the matters related to financial statement analysis, internal controls, and audit readiness. There is a need to educate Pakistan Army financial management officers to conduct a financial statement analysis of potential contractors in order to award contracts more effectively. Therefore, the Pakistani officers should also be educated on the financial statement analysis that will assist them in military business decision-making during the procurement process. The Pakistan Army has its own internal and external audit system; however, the Pakistan Army financial management officers can also learn from the best practices of internal controls and audit readiness as practiced by the industry and U.S. DOD. These best practices may further enhance the efficiency of the Pakistan Army organization overall because an effective and efficient internal control system sets the foundation for audit readiness in an organization and helps deter fraud.

This research consisted of five chapters. Chapter I was an introduction, which provided an overview and presented the research purpose and the research questions. This chapter also discussed the methodology, the importance of the research, and the organization of the report. Chapter II encompassed a review of the scholarly literature related to financial statement analysis, the Committee of Sponsoring Organizations (COSO) internal control framework as well as the U.S. government internal control standards and best practices, and the importance and best practices of audit readiness.

Chapter III described the methodology used for this research regarding financial statement analysis of a potential contractor, internal controls, and audit readiness. This chapter discussed the identification of requirements for an educational guide. Chapter IV provided the analysis and the recommendations based on analysis. The best practices recommended regarding financial statement analysis, internal controls, and audit readiness were incorporated into an educational guide for Pakistan Army financial management officers, as shown in Appendix I.

## **B. CONCLUSION**

The purpose of this research is to create a best practices educational guide that includes a framework for the processes of conducting a financial statement analysis of a potential contractor, instituting effective internal controls of an army outfit, and assuring the audit readiness of an army organization that will serve to assist Pakistan Army financial management officers. This research may assist these officers in assessing the financial health of a potential contractor before awarding a contract. This research may also provide guidelines to ensure effective internal controls aimed at deterring fraud, as well as helping to prepare an army organization for audit readiness. Based on the research, recommendations were provided. Ultimately, the Pakistan Army financial management officers' education, in the fields of financial statement analysis, internal controls, and audit readiness, is important for better strategic management of Pakistani Army organization as a whole, and their knowledge of these areas should be enhanced by the guidance provided by this study.

## **C. RESEARCH QUESTIONS**

This research study answered all of the three research questions identified in Chapter I. The following sections contain a review of the findings in the form of brief answers for the identified questions of this research study.

**1. What are the best practices for financial statement analysis to evaluate the financial health of a potential contractor for the Pakistan Army?**

This research study suggests four steps for the financial statement analysis process as the best practices to be followed by Pakistan Army financial management officers. The financial analysis framework for the Pakistan Army financial management officers to determine the financial health of a publicly traded company is illustrated in Table 17. The best practices that were found to be important for financial statement analysis to evaluate the health of a potential contractor for the Pakistan Army include four steps.

For the first step, a trend analysis should include a horizontal and a vertical analysis encompassing the balance sheet, the income statement, and the statement of cash flows. An example of a trend analysis of the balance sheet, the income statement, and the statement of cash flows are illustrated in Tables 2, 3, 4, and 5. An example of horizontal analysis is illustrated in Table 6. An example of vertical analysis is illustrated in Table 7.

The financial health factors discussed in the literature review have already been incorporated in the income statement and balance sheet. For example the inventory, accounts receivable, working capital (current assets and current liabilities), and fixed assets are all part of balance sheet. In addition, the net income, sales activity (revenues), and the operating environment are all related to the income statement.

For the second step, a ratio analysis of five years of data, and a comparative analysis within each company, between companies, and against industry averages should be performed. There are numerous ratios available. This research study selects only ten ratios (i.e., two ratios from each of the five categories of ratios) as the best practices for analysis of financial statements, as discussed by Winicur (1993); Davis and Peles (1993); Brigham and Houston (2007); Williams et al. (2008); Stickney et al. (2010); Rendon (2016); and Grant et al. (2016). These ten ratios may assist Pakistan Army financial management officers in determining the financial health of a company. The calculation procedures of these ten ratios selected from the previous work of many researchers are illustrated in Table 8.

For the third step, a bankruptcy analysis should be conducted. The Altman Z-Score Model (2000) should be used to gauge the bankruptcy of a potential contractor. Figure 24 presents the Z-Score Formula. A Z-Score smaller than 1.1 indicates that a firm will likely become bankrupt in the future and a Z-Score greater than 2.6 indicates that the company will not become bankrupt. Gates (1993), on the other hand, highlights the limitation of Z-Score values between 1.10 and 2.60, which do not predict bankruptcy. This area can be termed a gray area for a company.

For the fourth step, a fraud analysis should be conducted. The Beneish (2013) model should be used to calculate the M-Score of a potential contractor, as illustrated in Figure 26. The formulas used to calculate fraud ratios are illustrated in Figure 25.

## **2. What best practices are important for effective internal controls that can be used by Pakistan Army financial management officers?**

This section discusses the best practices that were found to be important for effective internal controls that can be used by the Pakistan Army financial management officers. Based on the COSO internal control integrated framework, a template of internal controls is recommended as a reference for Pakistan Army financial management officers to design and operate effective internal controls. A template encompassing the definition, importance, objectives, components, principles, and limitations of internal controls is illustrated in Table 12. In addition to Pakistan's existing internal control system, the contents of this table are recommended for implementation in the Pakistan Army to ensure more accountability and efficiency.

Three objectives and five components with 17 relevant principles from the COSO framework are recommended to ensure effective internal controls for the Pakistani Army. Pakistan Army management should effectively design, implement, and operate all of the five components to achieve effective internal controls. The 17 principles will also assist in establishing an effective internal control system. The five internal controls components along with the related internal control principles are illustrated in Figure 16.

In addition, six factors for effective internal controls are recommended to be applied by Pakistan Army financial management officers in their organizations to ensure

accountability and efficiency. These six factors include enhanced guidance and implementation methods, a vigilant approach to monitor program objectives, manager support for the organization's goals, risk assessment with appropriate cost benefit analysis, an evaluation process by management to assess design and operation of internal controls, and the accountability of management. These U.S. DOD practices are very useful for implementation in the Pakistan Army. Furthermore, Pakistan Army financial management officers should understand the interrelationship among the various components of internal controls. The templates of internal controls shown in Tables 13, 14, 15, and 16 are the recommended best practices to enhance the understanding of financial management officers in designing, operating, and executing an effective internal control system in the Pakistan Army.

**3. What best practices are important to become audit ready that can be used by Pakistan Army financial management officers?**

Several best practices were found to be important to become audit ready that can be used by the Pakistan Army financial management officers. The Pakistan Army should consider formulating its own auditing standards based on U.S. GAGAS, MAAG, and AGP to enhance its efficiency for audit readiness. In addition, the Government of Pakistan should consider preparing U.S. GAO type reports for Pakistani federal and provincial agencies to ensure accountability of all government institutions. The Pakistan Army should also consider preparing U.S. DOD IG-type reports to further strengthen the existing accountability system in the Pakistan Army.

Furthermore, the Pakistan Army should consider adopting the best practices of the U.S. DOD regarding internal audits, financial audits, compliance audits, and operational audits. As part of these best practices, it is essential to ensure that auditees understand the audit steps that are followed by the auditors, which may assist them to prepare a military organization for audit readiness. Figure 18 can assist the auditees to identify relationships among audit objectives, risk of material misstatement, and audit procedures.

The Pakistan Army should consider organizing courses like U.S. DOD FIAR Tier I and II courses. The FIAR strategy illustrated in Figure 21 may guide the Pakistan Army in developing its own strategy to prepare the army for the audit readiness. The U.S. Army

Financial Management Command (see Appendix H) ensures Army-wide audit readiness. The Pakistan Army may want to consider raising a command like USAFMCOM to develop an efficient financial management system in the army.

Furthermore, auditability triangle components, which include “competent personnel, capable processes, and effective internal controls,” are important to prepare an organization to be audit ready (Rendon & Rendon, 2015, p. 754). The auditability triangle is illustrated in Figure 23. All of the military units should prepare their own templates based on this auditability triangle to ensure accountability.

Based on U.S. best practices, two templates have been prepared to assist financial management officers in understanding the auditor’s and auditee’s perspectives. The auditor’s perspective framework is illustrated in Table 15, and the auditee’s perspective framework is illustrated in Table 16. These two templates can assist Pakistan Army financial management officers in preparing their military units and other military organizations for audit readiness. The following section discusses areas for further research.

#### **D. AREAS FOR FURTHER RESEARCH**

This research recommends three research areas for further research.

1. **Conducting a Comparative Study between the Pakistani Accounting Standards under IFRS and U.S. GAAP Regarding Financial Statement Analysis**

The Graduate School of Business and Public Policy at the Naval Postgraduate School teaches Generally Accepted Accounting Principles (GAAP) in accounting courses. Therefore, this research only covered U.S. GAAP-related financial statement analysis. However, as per The Securities and Exchange Commission of Pakistan (SECP, n.d.), all of the publicly accountable entities of Pakistan, including listed entities, public utilities, and unlisted economically significant entities, must follow the International Financial Reporting Standards (IRFS). Appendix B shows examples of a Balance Sheet, an Income Statement, a Statement of Cash Flows and a Statement of Retained Earnings companies using Pakistani accounting standards (ICAP, 2015). The Pakistan Army

financial management officers may find it difficult to analyze a company following IFRS accounting standards. This study recommends conducting a comparative study of Pakistani IFRS and U.S. GAAP and identifying best practices for the Pakistan Army regarding financial statement analysis.

**2. Conducting a Study to Identify the Requirements of Possibly Raising a Financial Management Command for the Pakistan Army.**

The U.S. Army Financial Management Command is trying to ensure Army-wide audit readiness. The USAFMCOM organization is shown in Appendix H. Pakistan is the world's sixth-largest standing army and needs a financial management command similar to USAFMCOM to maximize efficiency and effectiveness. A research study may be conducted to analyze the requirements of possibly raising a Pakistan Army Financial Management Command (PAKAFMCOM) for better strategic management of the Pakistan Army.

**3. Identifying Best Practices for Pakistani Industry Related to Financial Statement Analysis, Internal Controls, and Audit Readiness**

This research study focused on best practices for the Pakistan Army only. A further study can be conducted to identify best practices for financial statement analysis, internal controls, and audit readiness related to the Pakistani industry. Such a research study may enhance efficiency and effectiveness of the industry in Pakistan.

THIS PAGE INTENTIONALLY LEFT BLANK



## APPENDIX A. IFRS APPROVAL STATUS IN PAKISTAN

Standard	Applicable In Pakistan?	Examinable at this level?
IAS 1 – Presentation of Financial Statements	Yes	Yes
IAS 2 – Inventories	Yes	Covered earlier
IAS 7 – Cash Flow Statements	Yes	Yes
IAS 8 – Accounting Policies, Changes in Accounting Estimates and Errors	Yes	Yes
IAS 10 – Events occurring after the reporting period	Yes	Yes
IAS 11 – Construction Contracts	Yes	
IAS 12 – Income Taxes	Yes	Yes (in part)
IAS 14 – Segment Reporting	Yes	
IAS 16 – Property, Plant and Equipment	Yes	Yes
IAS 17 – Leases	Yes	Yes
IAS 18 – Revenue	Yes	Covered earlier
IAS 19 – Employee Benefits	Yes	
IAS 20 – Accounting for Government Grants and Disclosure of Government Assistance	Yes	
IAS 21 – The Effects of Changes in Foreign Exchange Rates	Yes	
IAS 23 – Borrowing Costs	Yes	Yes
IAS 24 – Related Party Disclosures	Yes	
IAS 26 – Accounting and Reporting by Retirement Benefit Plans	Yes	
IAS 27 – Consolidated and Separate Financial Statements	Yes	
IAS 28 – Accounting for Investments in Associates	Yes	
IAS 29 – Financial Reporting in Hyperinflationary Economies	Not relevant in Pakistan	
IAS 31 – Financial Reporting of Interests in Joint Ventures	Yes	
IAS 32 – Financial Instruments: Presentation	Yes	
IAS 33 – Earnings Per Share	Yes	
IAS 34 – Interim Financial Reporting	Yes	
IAS 36 – Impairment of Assets	Yes	
IAS 37 – Provisions, Contingent Liabilities and Contingent Assets	Yes	Yes
IAS 38 – Intangible Assets	Yes	Yes
IAS 39 – Financial Instruments: Recognition and Measurement	Yes (but deferred for banks)	
IAS 40 – Investment Property	Yes (but deferred for banks)	
IAS 41 – Agriculture	Yes	
IFRS 1 – First time adoption of IFRS	No (under consideration)	
IFRS 2 – Share-based payment	Yes	
IFRS 3 – Business combinations	Yes	Yes (in part)
IFRS 4 – Insurance contracts	Yes	
IFRS 5 – Non-current assets held for sale and discontinued operations	Yes	
IFRS 6 – Exploration for and evaluation of mineral resources	Yes	
IFRS 7 – Financial Instruments: Disclosures	Yes (but deferred for banks)	
IFRS 8 – Operating segments	Yes	
IFRS 9 – Financial Instruments	No (under consideration)	
IFRS 10 – Consolidated financial statements	No (under consideration)	Yes (in part)
IFRS 11 – Joint arrangements	No (under consideration)	
IFRS 12 – Disclosure of interests in other entities	No (under consideration)	
IFRS 13 – Fair value measurement	No (under consideration)	

THIS PAGE INTENTIONALLY LEFT BLANK

## APPENDIX B. EXAMPLES OF PAKISTANI BALANCE SHEET, INCOME STATEMENT, STATEMENT OF CASH FLOW, AND RETAINED EARNINGS

### 8.1 Statement of comprehensive income (analysis of expenses by function)



Illustration: Statement of comprehensive income (analysis of expenses by function)

Statement of comprehensive income for the year ended 31 December 2015	
	Rs. m
Revenue	X
Cost of sales	(X)
Gross profit	X
Other income	X
Distribution costs	(X)
Administrative expenses	(X)
Other expenses	(X)
Profit from operations	X
Other operating income	
Income from financial assets	X
Income from debts loans and advances to related parties	X
	X
Finance costs	(X)
Profit before tax	X
Taxation	(X)
<b>PROFIT FOR THE YEAR</b>	X
Other comprehensive income	
Sundry gains and losses	X
<b>OTHER COMPREHENSIVE INCOME FOR THE YEAR</b>	X
<b>TOTAL COMPREHENSIVE INCOME FOR THE YEAR</b>	X

### 8.2 Statement of financial position



Illustration: Statement of financial position format

Statement of financial position as at 31 December 2015

	Rs. m	Rs. m
<b>Assets</b>		
<b>Non-current assets</b>		
Property, plant and equipment	X	
Intangible assets	X	
Goodwill	X	
Long term investments (CO)	X	
Long term loans and advances (CO)	X	
Long term deposits and prepayments (CO)	X	
<b>Total non-current assets</b>	X	X
<b>Current assets</b>		
Stores, spare parts and loose tools (CO)	X	
Stock-in-trade (CO)		
Trade debts (CO)	X	
Current portion of long term loans and advances (CO)	X	
Cash and bank balances (CO)	X	
<b>Total current assets</b>		X
<b>Total assets</b>		X
<b>Equity and liabilities</b>		
<b>Capital and reserves</b>		
Share capital (issued, subscribed and paid up capital)		X
Share premium		X
Accumulated profits (Unappropriated profits)		X
Other reserves		X
<b>Total capital and reserves</b>		X
Revaluation surplus (CO)		X
<b>Non-current liabilities</b>		
Long-term financing	X	
Long term liabilities against assets subject to a finance lease	X	
Deferred tax	X	
<b>Total non-current liabilities</b>	X	
<b>Current liabilities</b>		
Trade and other payables	X	
Accrued interest / mark-up (CO)		
Short-term borrowings	X	
Current portion of long-term borrowing	X	
Current tax payable	X	
<b>Total current liabilities</b>	X	
<b>Total liabilities</b>		X
<b>Total equity and liabilities</b>		X

## 2.1 Format

IAS 7 does not include a format that must be followed. However it gives illustrative examples of formats that meet the requirements in the standard.

This section provides examples of these.



Illustration: Statement of cash flows		
	Rs.	Rs.
<b>Net cash flow from operating activities</b>		<b>75,300</b>
<b>Cash flows from investing activities:</b>		
Acquisition of shares (debentures, etc.)	(5,000)	
Purchase of property, plant and machinery	(35,000)	
Proceeds from sale of non-current assets	6,000	
Interest received/dividends received	1,500	
Net cash used in investing activities		(32,500)
<b>Cash flows from financing activities:</b>		
Proceeds from issue of shares	30,000	
Proceeds from new loan	10,000	
Repayment of loan	(17,000)	
Dividends paid to shareholders	(25,000)	
Net cash used in financing activities		(2,000)
Net increase/decrease in cash/cash equivalents		40,800
Cash/cash equivalents at the beginning of the year		5,000
Cash/cash equivalents at the end of the year		45,800

### Operating cash flows

IAS 7 permits two methods of presenting the cash flows from operating activities:

- the direct method, and
- the indirect method.

For clarity, what this means is that there are two approaches to arriving at the figure of *Rs. 75,300* in the above example.

IAS 7 allows entities to use either method of presentation. It encourages entities to use the direct method. However, the indirect method is used more in practice.

## 2.3 Pre-acquisition and post-acquisition profits

Subsidiaries are usually acquired after they have been in business for some time rather than when they were incorporated.

This means that the acquired subsidiary will have retained earnings at the date of the acquisition. These are called pre-acquisition profits.

Only profits earned by the subsidiary since the date of acquisition are included as retained earnings in the consolidated financial statements. These are called post-acquisition retained earnings.

Pre-acquisition profits of a subsidiary are not included as retained earnings in the consolidated financial statements.

The working for the consolidated retained earnings balance is as follows:



Illustration: Consolidated retained earnings	
	Rs.
All of P's retained earnings	X
P's share of the post-acquisition retained earnings of S	X
Consolidated retained earnings	<u>X</u>

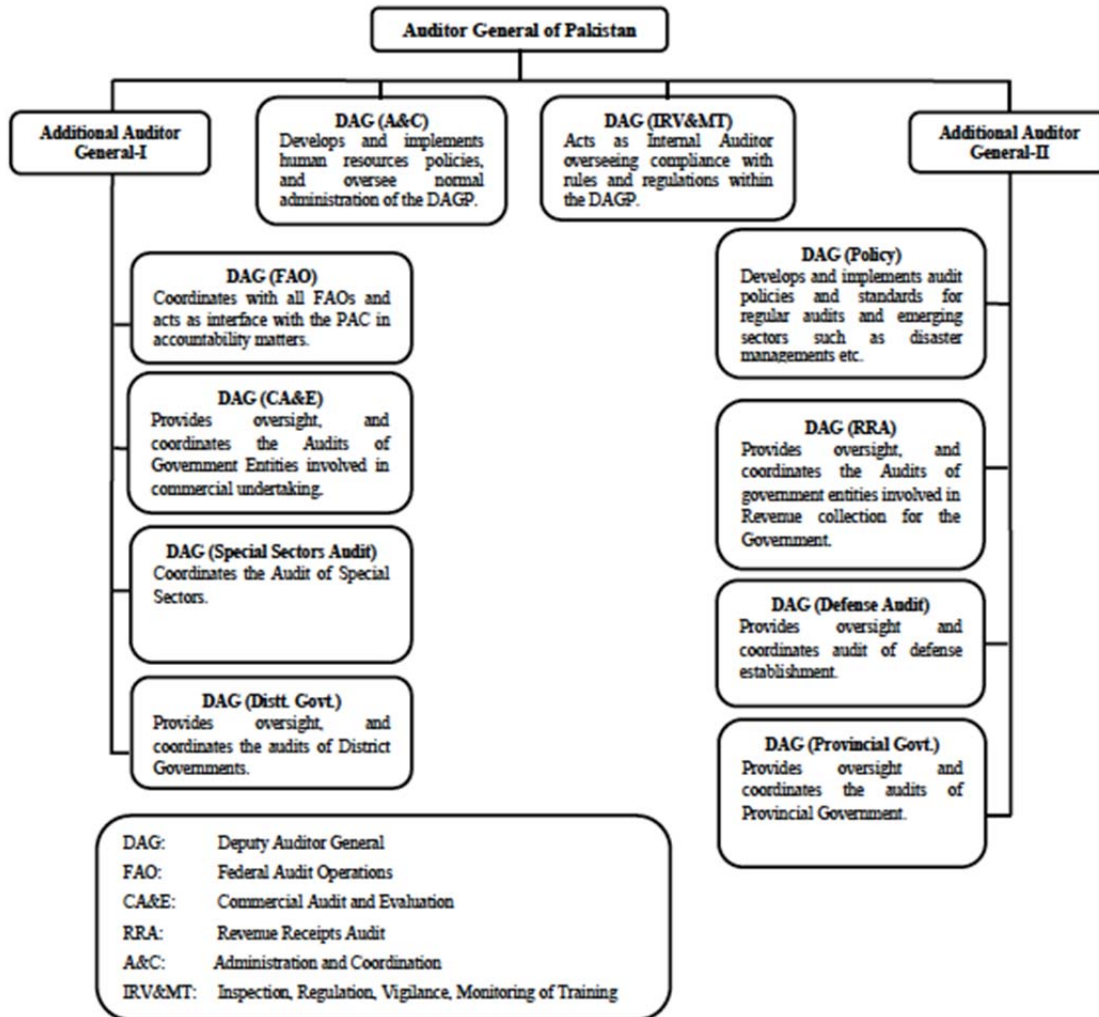
### Other reserves

Sometimes a subsidiary has reserves other than retained earnings. The same basic rules apply.

Only that part of a subsidiary's reserve that arose after the acquisition date is included in the group accounts (and then only the parent's share of it).

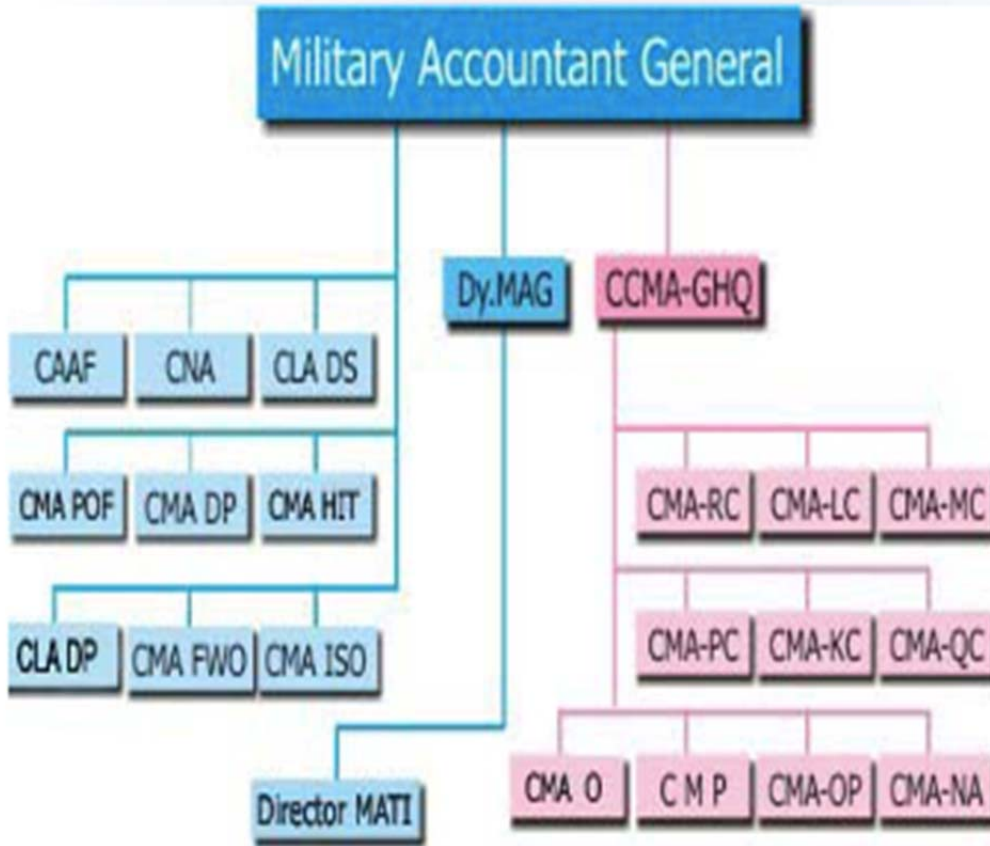
# APPENDIX C. ORGANIZATION OF PAKISTAN SAI

## ORGANIZATIONAL CHART OF SAI-PAKISTAN



THIS PAGE INTENTIONALLY LEFT BLANK

**APPENDIX D. PMAD ORGANIZATIONAL SETUP**



THIS PAGE INTENTIONALLY LEFT BLANK



**APPENDIX E. EXAMPLES OF U. S. PUBLICLY TRADED  
COMPANIES' BALANCE SHEET, INCOME STATEMENT,  
STATEMENT OF CASH FLOW, AND STATEMENT OF RETAINED  
EARNINGS**

<b>QUARTZ CORPORATION</b>			
<b>Balance Sheet</b>			
<b>December 31, 20X9</b>			
<b>Assets</b>		<b>Liabilities</b>	
Cash	\$192,000	Salaries payable	\$ 34,000
Accounts receivable	128,000	Accounts payable	<u>166,000</u>
Inventories	120,000	Total liabilities	\$200,000
Land	300,000	<b>Stockholders' equity</b>	
Building	100,000	Capital stock	\$220,000
Equipment	50,000	Retained earnings	<u>480,000</u>
Other assets	<u>10,000</u>	Total stockholders' equity	<u>700,000</u>
<b>Total assets</b>	<b><u>\$900,000</u></b>	<b>Total liabilities and equity</b>	<b><u>\$900,000</u></b>

<b>QUARTZ CORPORATION</b>		
<b>Income Statement</b>		
<b>For the Year Ending December 31, 20X9</b>		
<b>Revenues</b>		
Services to customers	\$750,000	
Interest revenue	<u>15,000</u>	
Total revenues		\$765,000
<b>Expenses</b>		
Salaries	\$235,000	
Rent	115,000	
Other operating expenses	<u>300,000</u>	
Total expenses		<u>650,000</u>
<b>Net income</b>		<b><u>\$115,000</u></b>

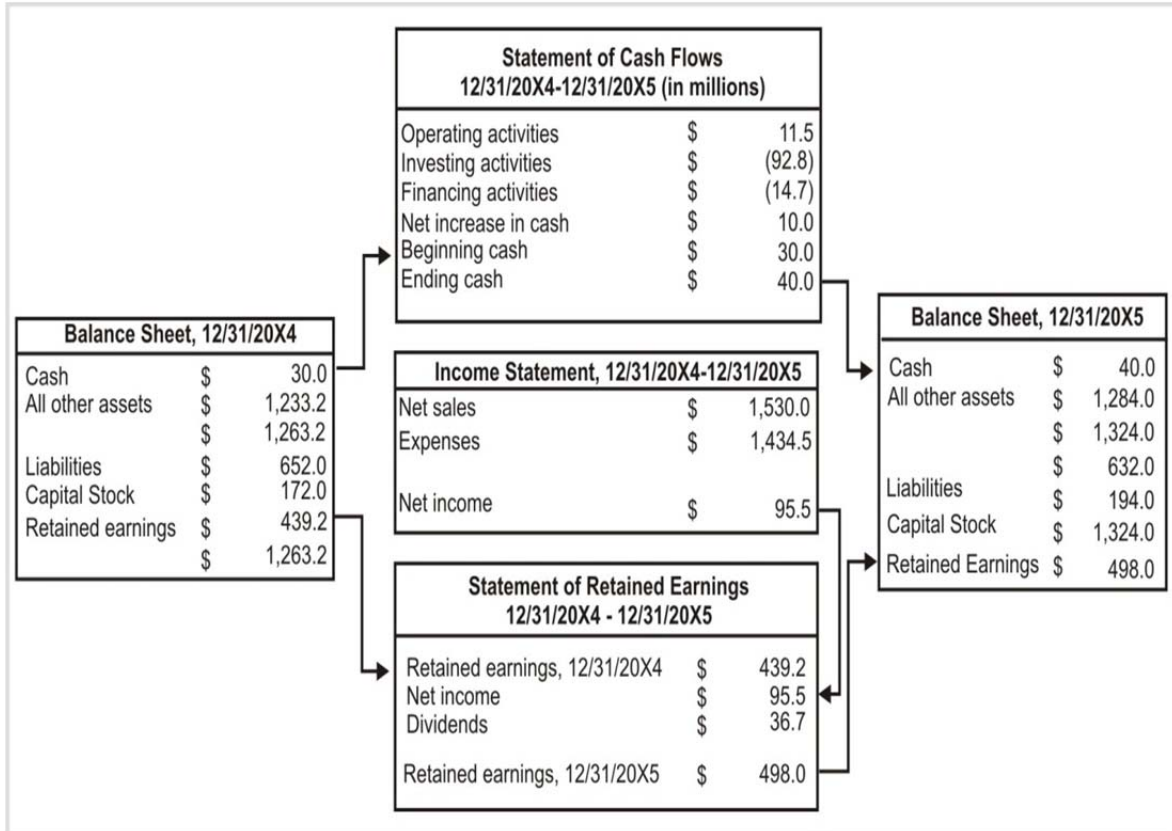
**QUARTZ CORPORATION**  
**Statement of Cash Flows**  
**For the Year Ending December 31, 20X9**

<b>Operating activities</b>		
Cash received from customers	\$ 720,000	
Cash received for interest	15,000	
Cash paid for salaries	(240,000)	
Cash paid for rent	(115,000)	
Cash paid for other items	<u>(300,000)</u>	
Cash provided by operating activities		\$ 80,000
<b>Investing activities</b>		
Purchase of land		(250,000)
<b>Financing activities</b>		
Payment of dividends		<u>(35,000)</u>
<b>Decrease in cash</b>		<b>\$(205,000)</b>
<b>Cash, January 1</b>		<u>397,000</u>
<b>Cash, December 31</b>		<u><u>\$ 192,000</u></u>

**QUARTZ CORPORATION**  
**Statement of Retained Earnings**  
**For the Year Ending December 31, 20X9**

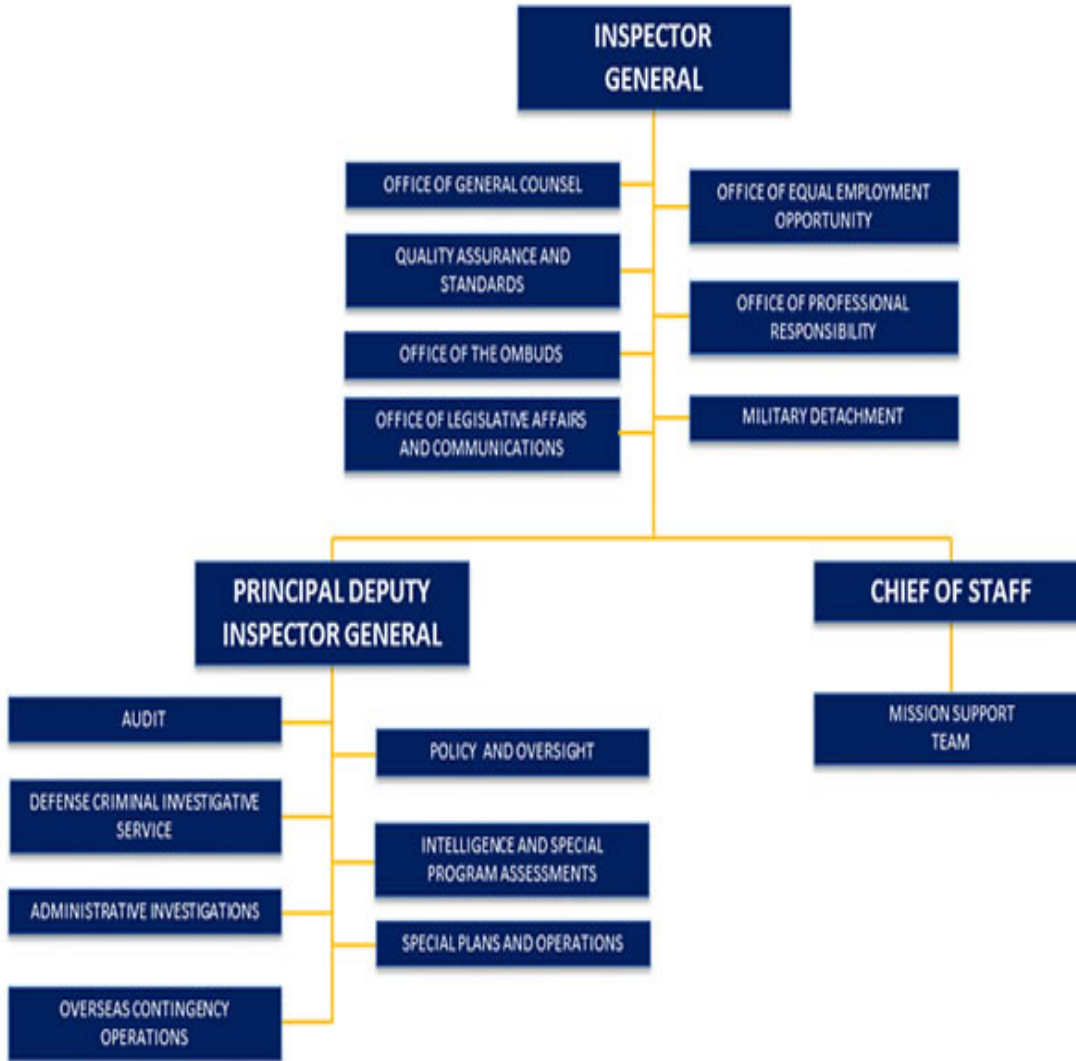
Retained earnings - January 1, 20X9	\$400,000
Plus: Net income	<u>115,000</u>
	\$515,000
Less: Dividends	<u>35,000</u>
Retained earnings - December 31, 20X9	<u><u>\$480,000</u></u>

## APPENDIX F. FINANCIAL STATEMENT ARTICULATION DIAGRAM



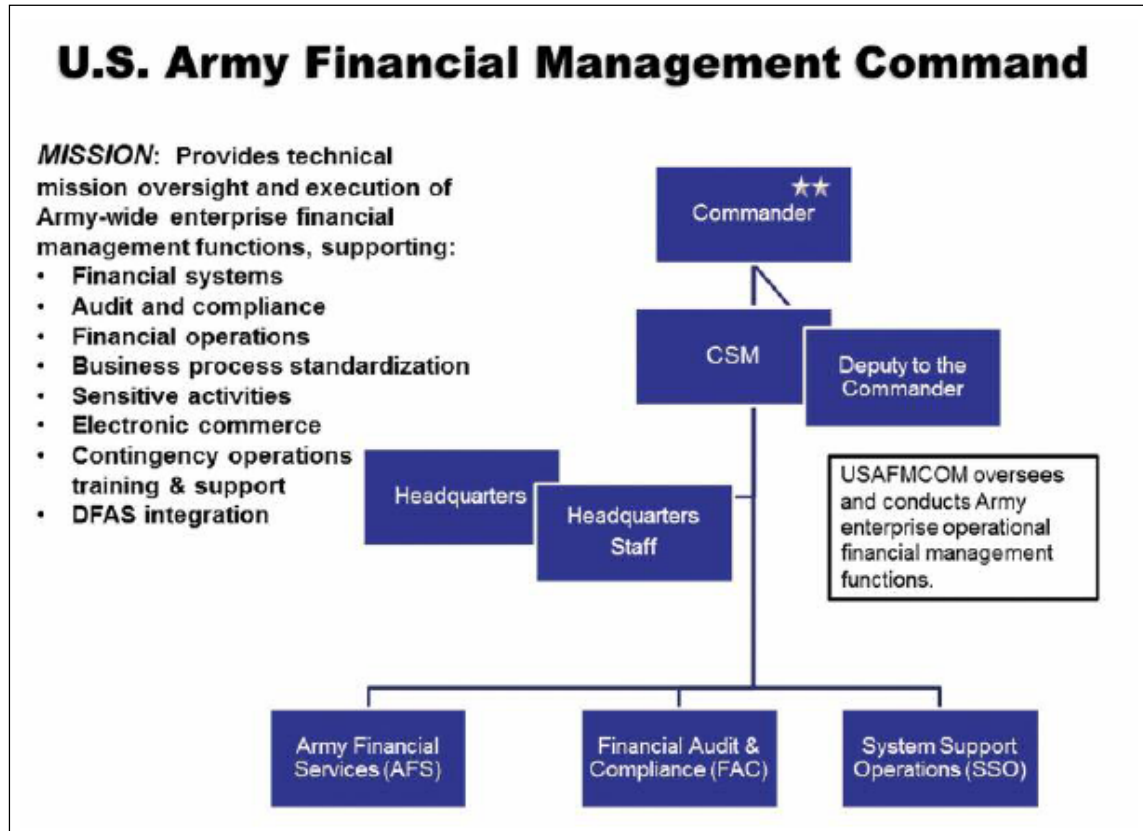
THIS PAGE INTENTIONALLY LEFT BLANK

## APPENDIX G. ORGANIZATION OF U.S. DOD OFFICE OF INSPECTOR GENERAL



THIS PAGE INTENTIONALLY LEFT BLANK

## APPENDIX H. ORGANIZATION OF U.S. ARMY FINANCIAL MANAGEMENT COMMAND



THIS PAGE INTENTIONALLY LEFT BLANK



## **APPENDIX I. EDUCATIONAL GUIDE CREATED BY LT. COL. MUHAMMAD SADIQ MALIK**

### **A. INTRODUCTION**

This educational guide provides a best practices framework for Pakistan Army financial management officers to apply during the financial statement analysis to determine the financial health of a company. This guide also suggests the efficient and effective internal control system best practices necessary for a military outfit. Furthermore, it recommends the best practices for audit readiness of a military organization.

### **B. FINANCIAL STATEMENT ANALYSIS FRAMEWORK FOR PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS**

This section presents the four steps related to financial statement analysis. The first step describes trend analysis including horizontal and vertical analysis encompassing the balance sheet, the income statement, and the statement of cash flows. Each sample company (Company A and Company B) presents five years of data for better explanation of the analysis process. The second step includes a ratio analysis of data from five years and a comparative analysis within each company, between companies, and against industry averages. The third step explains the bankruptcy analysis of both companies. The fourth step describes the fraud analysis of both companies.

#### **1. Gathering Financial Data**

To begin a financial statement analysis, the Pakistan Army financial management officers should obtain five years of data from all the financial statements of a potential contractor. For a publicly traded company, financial data is readily available at the Securities and Exchange Commission (SEC) website and data can be found at <https://www.sec.gov/edgar/searchedgar/companysearch.html>. Financial data can also be found on the company's website, which provides the company's annual reports (10 K). This data can also be found on the Mergent website at <http://www.mergentonline.com/basicsearch.php>. The industry averages of publicly traded

companies are available from the Reuters website at <http://www.reuters.com/> under market and stock categories. However, for privately held companies, financial data is not publically available. Therefore, the business decision-makers or contracting officers in the military must ask the business owners of a potential private contractor to present financial statements including footnotes and tax returns for the past three to five years in order to conduct a financial analysis of the company.

## 2. Trend Analysis of Financial Statements

The Pakistan Army financial management officers should obtain five years of data of a potential contractor to conduct a trend analysis. The trend analysis should be conducted using the balance sheet, the income statement, and the statement of cash flows. Examples of trend analyses are illustrated in Tables 18, 19, 20, and 21, and these tables may serve as a useful reference during the conduct of a trend analysis of real world companies.

Table 18. Balance Sheet: Trend Analysis of Company A and Company B

<b>Company A</b>					
<b>Millions of USD</b>	<b>2012</b>	<b>2103</b>	<b>2104</b>	<b>2015</b>	<b>2016</b>
Total Assets	36520	35908	32405	30090	27264
Net Stated Inventory	4123	4073	3434	3199	2616
Account Receivable	10413	10832	9394	10518	9416
Total Liabilities and Debt	26601	25654	24099	24602	20678
<b>Company B</b>					
Total Assets	10,705	15,860	16,881	18,357	27,081
Net Stated Inventory	803	1,218	1,964	2,701	2,995
Account Receivable	3,526	5,437	5,588	5,557	7,838
Total Liabilities and Debt	8,871	13,499	14,428	15,559	23,210

Table 19. Income Statement: Trend Analysis of Company A and Company B

<b>Company A</b>					
<b>Millions of USD</b>	<b>2012</b>	<b>2103</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Total Revenue	54,687	54,463	46,569	46,139	36,617
Direct Operating Cost	13,585	13,777	11,781	10,863	9,192
Net Income	665	521	-775	1096	1167
<b>Company B</b>					
Total Revenue	21,594	29,574	33,873	38,707	46,295
Direct Operating Cost	1982	2863	3273	4034	5574
Net Income	273	472	635	817	828

Table 20. Cash Flows: Trend Analysis of Company A and Company B

<b>Company A</b>					
<b>Millions of USD</b>	<b>2012</b>	<b>2103</b>	<b>2104</b>	<b>2015</b>	<b>2016</b>
Total Cash from Operating Activities	7	6	2	1709	2334
Total Cash from Investing Activities	11	-2	-2	-1249	-1671
Total Cash from Financing Activities	-2	-2	-1	-448	-144
Foreign Exchange Effects	-98	-76	79	147	-12
Net change in cash	-94	-73	78	160	507
<b>Company B</b>					
Total Cash from Operating Activities	965	1,939	19	1,432	238
Total Cash from Investing Activities	65	-837	-245	-583	-3,281
Total Cash from Financing Activities	-372	-315	-68	-430	2,142
Effects of Exchange Rates	58	15	-9	-14	-102
Net change in cash	716	803	-303	404	-1,002

Table 21. Cash Flows: Trend Analysis of Company A and Company B

Company A				
Year	Operating	Investing	Financing	Analysis
2012	+	-	-	Growing
2013	+	-	-	Growing
2014	+	-	-	Growing
2015	+	-	-	Growing
2106	+	-	-	Growing
Company B				
Year	Operating	Investing	Financing	Analysis
2012	+	+	-	Growing
2013	+	-	-	Growing
2014	+	-	-	Growing
2015	+	-	-	Growing
2106	+	-	+	Debt to buy PP&E

### 3. Summarizing Horizontal and Vertical Analyses of Financial Statements

Upon completion of a trend analysis, the Pakistan Army financial management officers should conduct horizontal and vertical analyses. Examples of vertical analysis and horizontal analysis are illustrated in Tables 22 and 23, respectively. These analyses may assist them in understanding the performance of a company in different time periods. Furthermore, vertical analysis may assist them in identifying fluctuations in different accounting items. This analysis also helps determine the relationship of assets on the balance sheet with other items in terms of percentage. Furthermore, they may find this analysis helpful in assessing the relationships between revenue and other items in terms of percentage on the income statement and the statement of cash flows. The financial health factors are already incorporated in the income statement and balance sheet. For example the inventory, accounts receivable, working capital (current assets and current liabilities), and fixed assets are all part of balance sheet. In addition, the net income, sales activity (revenues), and the operating environment are all related to the income statement.

Table 22. Horizontal Trend Analysis of the Balance Sheet, the Income Statement and the Statement of Cash Flow of Company A

<b>Company A Consolidated Balance Sheet</b>	<b>31-Dec-12</b>	<b>31-Dec-13</b>	<b>31-Dec-14</b>	<b>31-Dec-15</b>	<b>31-Dec-16</b>
<b>Assets</b>					
Current Assets	100%	30%	24%	23%	25%
Long Term Assets	100%	68%	65%	59%	50%
<b>Total Assets</b>	100%	98%	89%	82%	75%
<b>Liabilities</b>					
Current Liabilities	100%	30%	34%	22%	29%
Long Term Liabilities (Debt)	100%	67%	58%	59%	50%
<b>Total Liabilities</b>	100%	97%	92%	81%	79%
Retained Earnings	100%	69%	78%	65%	51%
Total Shareholders' Equity	100%	61%	89%	38%	34%
<b>Total Liabilities and Shareholders' Equity</b>	100%	98%	89%	82%	75%
<b>Company A Income Statement</b>					
Revenue	100%	100%	85%	85%	67%
Operating Expenses	100%	113%	87%	86%	69%
Income Before Income Tax	100%	18%	117%	110%	71%
Income tax expense	100%	9%	116%	20%	89%
Net Income	100%	78%	-117%	165%	175%
<b>Company A Statement of Cash Flows</b>					
Total Cash from Operating Activities	100%	96%	28%	110%	120%
Total Cash from Investing Activities	100%	136%	100%	140%	150%
Total Cash from Financing Activities	100%	84%	53%	170%	180%
Foreign Exchange Effects	100%	27%	-60%	-24%	-99%
Net change in cash	100%	112%	-42%	56%	-140%

Table 23. Vertical Trend Analysis of the Balance Sheet, the Income Statement, and the Statement of Cash Flow of Company A

Company A Consolidated Balance Sheet	31-Dec-12	31-Dec-13	31-Dec-14	31-Dec-15	31-Dec-16
<b>Assets</b>					
Current Assets	40%	32%	45%	41%	50%
Long Term Assets	60%	68%	65%	59%	50%
<b>Total Assets</b>	100%	100%	100%	100%	100%
<b>Liabilities</b>					
Current Liabilities	34%	32%	33%	30%	25%
Long Term Liabilities (Debt)	55%	65%	50%	45%	40%
<b>Total Liabilities</b>	70%	71%	65%	69%	73%
Retained Earnings	17%	19%	18%	15%	12%
Total Shareholders' Equity	110%	11%	9%	8%	6%
<b>Total Liabilities and Shareholders' Equity</b>	100%	100%	100%	100%	100%
Company A Income Statement	31-Dec-12	31-Dec-13	31-Dec-14	31-Dec-15	31-Dec-16
Revenue	100%	100%	100%	100%	100%
Operating Expenses	100%	90%	87%	92%	89%
Income Before Income Tax	100%	10%	13%	8%	11%
Income tax expense	100%	3%	16%	2%	2%
Net Income	100%	7%	-3%	6%	9%
Company A Statement of Cash Flows	31-Dec-12	31-Dec-13	31-Dec-14	31-Dec-15	31-Dec-16
Total Cash from Operating Activities	0.01%	0.01%	0.00%	3.7%	6.4%
Total Cash from Investing Activities	0.02%	-0.004%	.004%	-2.71%	-4.5%
Total Cash from Financing Activities	-0.003%	-0.003%	-0.02%	-0.97%	-0.4%

#### 4. Ratio Analysis

Ratio analysis is very important to determine the financial health of a company. This guide selects two ratios from each of five categories of ratios as the best practices for ratio analysis of financial statements. These ten ratios will contribute to a determination of the financial health of a company. The calculation procedures and

applicability of these ten ratios are shown in Table 24. Pakistan Army financial management officers can calculate financial ratios for real world companies by using the formulas show in Table 24.

Table 24. Categories of Ratios Selected for Financial Ratio Analysis

Category of Ratios	Ratios	Formulas to Calculate Ratios	Utilization
Liquidity (solvency) Ratios	Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Measures short-term solvency or the capability of a company to pay its short-term debt obligations when they become payable.
	Quick Ratio	$\frac{(\text{Current Assets} - \text{Accounts Receivable} - \text{inventory})}{\text{Current Liabilities}}$	
Asset Management (Operating Efficiency) Ratios	Inventory Turnover Ratio	$\frac{\text{COGS}}{\text{Inventory}}$	Measures how well a company is managing its inventory.
	Days Sales Outstanding (DSO) Average Collection period	$\frac{\text{Accounts Receivable}}{\text{Average sales per Day}}$	Measures the total number of days between the date of sale and the date of cash collection.
Debt Management Ratios	Debt Ratios	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Measures the percentage of each \$1 of assets financed with debt.
	Times Interest Earned Ratio	$\frac{\text{Operating Income}}{\text{Interest Expense}}$	Measures the ability of a company to pay interest on its debt.
Profitability Ratios	Return on Assets (ROA)	$\frac{\text{Net Income}}{\text{Total Assets}}$	Measures the profit a company will make from each \$1 of investment in assets.
	Return on Equity (ROE)	$\frac{\text{Net Income}}{\text{Shareholders' Equity}}$	Measures how much the company is earning in cents on each \$1 of shareholders' investment.
Market Value Ratios	Earnings per Share (EPS)	$\frac{\text{Net Earnings}}{\text{Average Shares Outstanding}}$	Measures profit earned per each outstanding share of common stock.
	Price Earning (P/E) Ratios	$\frac{(\text{Market Price of Common Stock})}{\text{EPS}}$	Indicates how much investors are willing to pay for stock. Used in valuing companies.

Adapted from Winicur (1993); Davis and Peles (1993); Brigham and Houston (2007); Williams et al. (2008); Stickney et al. (2010); Rendon (2016); and Grant et al. (2016).

## 5. Fraud Ratio Analysis

Beneish's (2013) M-Score is recommended for use in calculating the fraud potential of a company. The M-Score formula is shown in Figure 27. Eight fraud ratios and the associated formulas are shown in Figure 28. The Pakistan Army financial management officers should calculate the eight fraud ratios using the formulas shown in Figure 28, and then apply these formulas to calculate the M-Score as shown in Figure 27.

$$\begin{aligned} M\text{-score} = & -4.84 + 0.920(\text{DSR}) + 0.528(\text{GMI}) \\ & + 0.404(\text{AQI}) + 0.892(\text{SGI}) \\ & + 0.115(\text{DEPI}) - 0.172(\text{SGAI}) \\ & + 4.679(\text{Accruals}) - 0.327(\text{LEVI}). \end{aligned}$$

Figure 27. M-Score Formula for Fraud Analysis.  
Source: Beneish et al. (2013).



Exhibit A1. Description of Variables and Rationale for Inclusion		
Variable	Description (numbers in brackets are Compustat codes)	Rationale
DSR	$(\text{Receivables}_t [2]/\text{Sales}_t [12]) / (\text{Receivables}_{t-1} / \text{Sales}_{t-1})$	Captures distortions in receivables that can result from revenue inflation
GMI	$\text{Gross margin}_{t-1} / \text{Gross margin}_t$ , where $\text{Gross margin} = 1 - \text{Costs of goods sold [8]} / \text{Sales}$	Deteriorating margins predispose companies to manipulate earnings
AQI	$[1 - (\text{PPE}_t + \text{CA}_t) / \text{TA}_t] / [1 - (\text{PPE}_{t-1} + \text{CA}_{t-1}) / \text{TA}_{t-1}]$ , where PPE is net [8], CA is current assets [4], and TA is total assets [6]	Captures distortions in other assets that can result from excessive expenditure capitalization
SGI	$\text{Sales}_t [12] / \text{Sales}_{t-1}$	Managing the perception of continuing growth and capital needs predisposes growth companies to manipulate sales and earnings
DEPI	$\text{Depreciation rate}_{t-1} / \text{Depreciation rate}_t$ , where $\text{Depreciation rate} = \text{Depreciation [14-65]} / (\text{Depreciation} + \text{PPE [8]})$	Captures declining depreciation rates as a form of earnings manipulation
SGAI	$(\text{SGA}_t [189] / \text{Sales}_t [12]) / (\text{SGA}_{t-1} / \text{Sales}_{t-1})$	Decreasing administrative and marketing efficiency (larger fixed SGA expenses) predisposes companies to manipulate earnings
Accruals <sup>a</sup>	$(\text{Income before extraordinary items [18]} - \text{Cash from operations [308]}) / \text{Total assets}_t [6]$	Captures where accounting profits are not supported by cash profits
LEVI	$\text{Leverage}_t / \text{Leverage}_{t-1}$ , where $\text{Leverage} = \text{debt to assets: } (5 + 9) / 6$	Increasing leverage tightens debt constraints and predisposes companies to manipulate earnings

Figure 28. Explanation of M-Score's Fraud Ratios. Source: Beneish et al. (2013).

## 6. Bankruptcy Analysis

Altman's (2000) Z-Score is recommended for the calculation of the bankruptcy potential of a company. Figure 29 shows the Altman Z-Score formula. The Pakistan Army financial management officers should first calculate the values of X1, X2, X3, X4, and X5, and then apply these calculations in the Z-Score formula. Upon completion of calculations for the five years, these calculations should be compared with the bankruptcy limitations. A Z-Score smaller than 1.1 indicates that a firm will become bankrupt in the future, and a Z-Score greater than 2.6 indicates that the company will not become bankrupt (Grant et al., 2016).

$$(I) \quad Z = .012X_1 + .014X_2 + .033X_3 + .006X_4 + .999X_5$$

where  $X_1 = \text{Working capital/Total assets}$   
 $X_2 = \text{Retained Earnings/Total assets}$   
 $X_3 = \text{Earnings before interest and taxes/Total assets}$   
 $X_4 = \text{Market value equity/Book value of total debt}$   
 $X_5 = \text{Sales/Total assets}$   
 $Z = \text{Overall Index}$

Figure 29. Z-Score Formula to Detect Bankruptcy. Source: Altman (1968).

### 7. **Financial Statement Framework Chart for Pakistan Army Financial Management Officers**

The financial statement analysis framework for Pakistan Army financial management officers encompassing all of the previously mentioned steps to determine the financial health of a publicly traded company is presented in Table 25. This framework will assist Pakistan Army officers in their assessment to determine the financial health of a potential contractor. The best practices for Pakistan Army financial management officers for the calculation of financial ratios during the evaluation process of the financial statement analysis are shown in Table 25.

Table 25. Financial Analysis Framework for Pakistan Army  
Financial Management Officers

Financial Analysis Framework for Pakistan Army Financial Management Officers to Determine the Financial Health of a Publicly Traded Company								
Trend Analysis (Comparison of Financial Statements' Data for five years)								
Balance Sheet (BS)	Assets	Inventory (FHF)	Accounts Receivable (FHF)	Liabilities & Debts	Other items, like Fixed Assets & Working Capital (FHF), can be included			
Income statement (IS)	Revenue (Sales Activity FHF)	Cost (direct or indirect)	Net Income (FHF)	Other items, like COGS, Operating income, SG&A, income tax, interest expense, Operating Environment (FHF) etc., can be included.				
Statement of Cash Flows (CF)	Operating Positive good sign	Investing Negative Good Sign	Financing Negative Good sign	+, -, - is ideal combination				
<b>Horizontal Analysis</b>	Select Base year and compare FS' items with base year. Draw conclusions & note trends.							
<b>Vertical Analysis</b>	Select assets as base for BS and Revenue as base for IS and CF. Compare main items of BS with Assets in % and Compare IS and CF items with Revenue in %. Draw relevant conclusions.							
<b>Ratio Analysis</b>	Liquidity (solvency) Ratios	Asset Management Ratios	Debt Management Ratios	Profitability Ratios	Market Value Ratios			
	Quick Ratio	Inventory Turnover	Debt Ratios	ROA	EPS			
	Current Ratio	DSO	Times Interest Earned Ratio	ROE	Price of EPS			
	Compare with Industry averages (Reuters Online). Draw Conclusions about solvency, efficiency, debt management, profitability, and market value							
<b>Bankruptcy Analysis</b>								
<b>Altman Z-Score</b>	$Z = 0.12 *(X1) + 0.014*(X2) + 0.033 *(X3) + 0.006 *(X4) + 0.999 *(X5)$							
	The Z-Score smaller than 1.1 indicates that a firm will become bankrupt in the future and a value greater than 2.6 indicates that the company will not become bankrupt.							
	Z-Score in-between 1.1 and 2.6 indicates gray area							
<b>Fraud Analysis</b>								
Variables	GS I	GMI	AQI	S GI	DEPI	SGAI	LVGI	TATA
Beneish M-Score	$M = -4.84 + 0.920 (DSR) + 0.528 (GMI) + 0.404 (AQI) + 0.892 (S GI) + 0.115 (DEPI) - 0.172 (SGAI) + 4.679 (TATA) - 0.327 (LEVI)$							
Criteria	M-Score bigger than -2.22 suggests that a company may be manipulating its earnings							

### **C. INTERNAL CONTROL FRAMEWORK FOR PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS**

This section recommends an internal control framework. The three objectives and five components with the 17 relevant principles from the COSO framework are recommended to ensure effective internal controls for the Pakistan Army financial management officers. The Pakistan Army financial management officers should effectively design, implement, and operate all of the five components to achieve effective internal controls. The 17 principles will help assist in establishing an effective internal control system. A template of recommended internal controls is provided as an easy reference for designing and operating effective internal controls. A template encompassing definition, importance, objectives, components, principles, and limitations of internal controls is illustrated in Table 26. In addition to the existing internal control system in use by the Pakistan Army, the system described in Table 26 is recommended for implementation to ensure greater accountability and efficiency of the Pakistan Army.

#### **1. Implementation of GAO's (2005) Six Factors in Pakistan Army**

The U.S. Government Accountability Office (GAO) (2005) report suggests six factors for effective internal controls. These factors can be applied by Pakistan Army financial management officers in their organization to ensure accountability and efficiency. These six factors include enhanced guidance and implementation methods, a vigilant approach to monitor program objectives, management support for the organization's goals, risk assessment with appropriate cost benefit analysis, an evaluation process by management to assess design/operation, and the accountability of management. These U.S. Department of Defense (DOD) practices are very useful for implementation in the Pakistan Army.

Table 26. Internal Control Template for Pakistan Army Financial Management Officers

Internal Controls (IC) Quick Reference Template for Pakistan Army Financial Management Officers (Derived from COSO, OMB, and U.S. GAO Reports)				
Definition	Importance	3 Objectives	5 Components and 17 Principles	Limitations
<p>A process effected by an entity’s board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance. IC in a broad sense includes a plan of organization, methods, and procedures adopted by management to meet its goals.</p>	<p>IC applies to all entities (large, medium &amp; small). <b>ICs prevent, detect, correct, or minimize:</b></p> <ul style="list-style-type: none"> <li>Accounting errors</li> <li>Risk of asset loss</li> <li>Irregularities</li> <li>Illegal acts</li> <li>Intentional or unintentional fraud</li> </ul> <p><b>ICs Enhance</b></p> <ul style="list-style-type: none"> <li>Efficiency</li> <li>Effectiveness</li> <li>Alertness for problems</li> <li>Rules compliance</li> <li>Management alertness</li> <li>Designing, applying, and executing ICs</li> <li>External stakeholders’ confidence</li> <li>Ability to mitigate inefficient, ineffective, and redundant controls</li> </ul>	<ul style="list-style-type: none"> <li><b>Operation.</b> Organizations’ efficiency of operations for effective financial performance and measures to safeguards assets</li> </ul>	<p><b>Control Environment</b></p> <ul style="list-style-type: none"> <li>18. Management Integrity</li> <li>19. Entity IC System</li> <li>20. System to assign and delegate responsibility</li> <li>21. Recruitment, development, and retention of individuals</li> <li>22. Accountability of IC responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>Reasonable assurance and no complete assurance</li> <li>Cannot eliminate all errors</li> <li>Human decisions may be wrong or biased</li> <li>Errors/ Omissions in selection or application of objectives</li> <li>Override principles</li> <li>Intent to dodge the system</li> <li>External factors</li> </ul>
		<ul style="list-style-type: none"> <li><b>Reporting.</b> Internal and external financial reporting encompassing reliability, timeliness, transparency, or other terms set forth by regulators, recognized standards setters, or the entity policies</li> </ul>	<p><b>Risk Assessment</b></p> <ul style="list-style-type: none"> <li>23. Identification of risk and risk tolerance</li> <li>24. Response to risk</li> <li>25. Consider potential for fraud</li> <li>26. Identify changes affecting IC</li> </ul>	
		<ul style="list-style-type: none"> <li><b>Compliance.</b> Compliance to rules and regulations applicable to the entity.</li> </ul>	<p><b>Control Activities</b></p> <ul style="list-style-type: none"> <li>27. Design IC</li> <li>28. Design info. system</li> <li>29. Implement control activities</li> </ul>	
			<p><b>Information and communications</b></p> <ul style="list-style-type: none"> <li>30. Use quality information</li> <li>31. Internal Communication</li> <li>32. External Communication</li> </ul>	
			<p><b>Monitoring Activities</b></p> <ul style="list-style-type: none"> <li>33. Monitoring of IC System and evaluate results</li> <li>34. Remediate identified IC deficiencies on a timely basis</li> </ul>	
<p><b>GAO (2005) six factors for IC</b> include enhanced guidance and implementation methods, a vigilant approach to monitor program objectives, management’s support for the organization’s goals, risk assessment with appropriate cost benefit analysis, an evaluation process by the management to assess design and operation, and accountability of management</p>				

Adapted from COSO (2013); GAO (2001); GAO (2005); and GAO (2014).

## 2. Interrelationship among Internal Control Components

Pakistan Army financial management officers should understand the interrelationship among various components of internal controls. The templates for

internal controls are shown in Tables 27 and 28, and are recommended as best practices and as a reference to enhance the understanding of Pakistan Army financial management officers in designing, operating, and executing an effective internal control system in the Pakistan Army. An illustration of the first example of the control environment and the first internal control principle is shown in Table 27. In this example the control environment, the information and communication, and the monitoring activities of the internal control system are illustrated.

Table 27. Interrelationship of the Control Environment, the Information and Communication, and the Monitoring Activities of the Internal Control System.  
Source: COSO (2013).

Internal Control Component	Control Environment		
Principle	1. The organization demonstrates a commitment to integrity and ethical values.		
Controls embedded in other components may affect this principle.	Human Resources review employees' confirmations to assess whether standards of conduct are understood and adhered to by staff across the entity.	Management obtains and reviews data and information underlying potential deviations captured in whistleblower hotline to assess quality of information.	Internal Audit separately evaluates Control Environment, considering employee behaviors and whistleblower hotline results, and reports thereon.
	Control Environment	Information & Communication	Monitoring Activities

An illustration of the interrelationship between the monitoring activities and internal control principle 16 is shown in Table 28. In this example, the monitoring activities, the control environment, and the risk assessment of the internal control system are illustrated.

Table 28. Interrelationship between the Monitoring Activities, the Control Environment, and Risk Assessment of the Internal Control System. Adapted from COSO (2013).

Internal Control Component	Monitoring Activities		
Principle	16. Management should establish and operate monitoring activities to monitor the internal control system and evaluate the results.		
Controls embedded in other components may affect this principle.	Management created a conducive environment by training the salesmen/women to ensure their competence and integrity. Management assigned them responsibility and authority to implement the policy of selling only to DOD and military persons at a store.	There are three risks associated with accomplishment in this monitoring activity: 1) the salesperson may override the policy and sell inventory to his/her civilian friends or relatives; 2) the salesperson may neglect to or fail to check the military ID of the customer; 3) the salesperson may not be competent enough to differentiate between a fake and an actual military ID and may fall victim to a fraudster.	The camera installed to record activities in the store helps management to evaluate and determine the efficient functioning of internal controls by a competent salesperson. Continuous monitoring by the management through the camera is a deterrent for the salesperson and customers to commit fraud and can minimize loss of assets.
	Control Environment	Risk Assessment	Monitoring Activities

#### **D. AUDIT READINESS FRAMEWORK FOR PAKISTAN ARMY FINANCIAL MANAGEMENT OFFICERS**

This section provides an audit readiness framework for Pakistan Army financial management to prepare their military units to become audit ready.

##### **1. Getting Ready for Different Types of Audits**

The Pakistan Army should consider adopting the best practices of the U.S. DOD regarding internal audits, financial audits, compliance audits, and operational audits. Auditees must understand the audit steps that are followed by the auditors, and these steps may assist them to prepare a military organization for audit readiness. These steps include planning an audit and understanding the client, the client’s environment, and internal controls. Further steps include assessing material misstatement risk in designing

further audit procedures, performing further procedures, completing the audit, forming an opinion, and issuing the audit reports. The audit stages are illustrated in Figure 30.

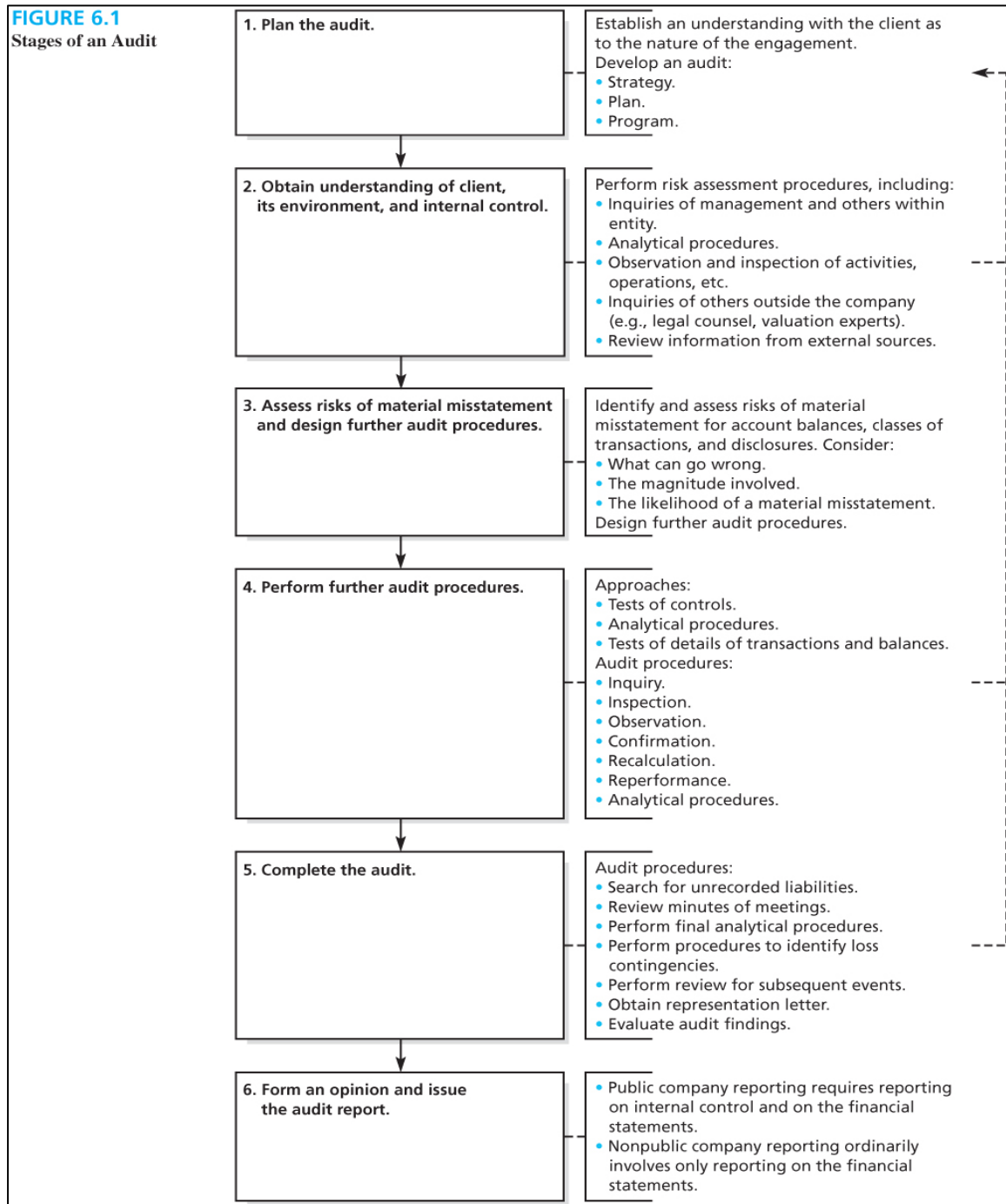


Figure 30. The Stages of Audit. Source: Whittington and Pany (2012).



Figure 31 may assist auditees in identifying the relationships among audit objectives, the risk of material misstatement, and audit procedures.

**FIGURE 6.8** Relationships among Audit Objectives, Risks of Material Misstatement, and Audit Procedures

General Audit Objectives for Assets	Specific Audit Objectives for Accounts Receivable	Risks of Material Misstatement: "What Can Go Wrong"	Example Audit Procedures
Existence of assets	All recorded receivables exist.	Receivables may have been recorded that do not exist.  Management may have fraudulently overstated revenue and receivables by making inappropriate adjusting journal entries.	Confirm a sample of receivables by direct communication with debtors.  Review monthly adjusting entries for suspicious items.
Rights to assets	The client has rights to the receivables.	Accounting personnel may erroneously be treating a sale of receivables as a liability.	Review confirmations of liabilities to determine if receivables have been sold or factored.
Completeness of assets	All receivables are recorded.	Management may have shipped items before the end of the period but not recorded the sales and related receivables until the subsequent period.	Select a sample of sales invoices in the subsequent period and examine the related shipping document for date of shipment.
Cutoff of transactions	Sales and cash receipt transactions are recorded in the proper period.	Sales and receivables for the next period may be recorded in the current period.	Vouch sales and cash receipt transactions occurring near period end.
Valuation of assets	Receivables are presented at net realizable value.	Allowance for uncollectible accounts may be misestimated by management.  Allowance for sales returns and allowances may be misestimated by management.  Software routine to develop aged trial balance of receivables may have been erroneously programmed.	Investigate the credit ratings for delinquent and large receivables.  Compare the amount of credits given to customers in the subsequent period to the amount estimated by management.  Obtain an aged trial balance of receivables, test its clerical accuracy, and reconcile to the ledgers.
Financial statement presentation of assets	Receivables are properly presented in the balance sheet, with appropriate disclosures.	Accounting personnel may have failed to identify related party transactions.	Provide a list of related parties to all members of the audit team to assist in identification of the transactions.

Figure 31. Relationship among Audit Objectives, Risk of Material Misstatement, and Audit Procedures. Source: Whittington and Pany (2012).

## 2. Implementation of the Auditability Triangle

The auditability triangle components, which include “competent personnel, capable processes, and effective internal controls,” are important to prepare an organization to be audit ready (Rendon & Rendon, 2015, p. 754). The auditability triangle is illustrated in Figure 32. All of the military units in the Pakistan Army should prepare their templates based on this auditability triangle to ensure accountability.

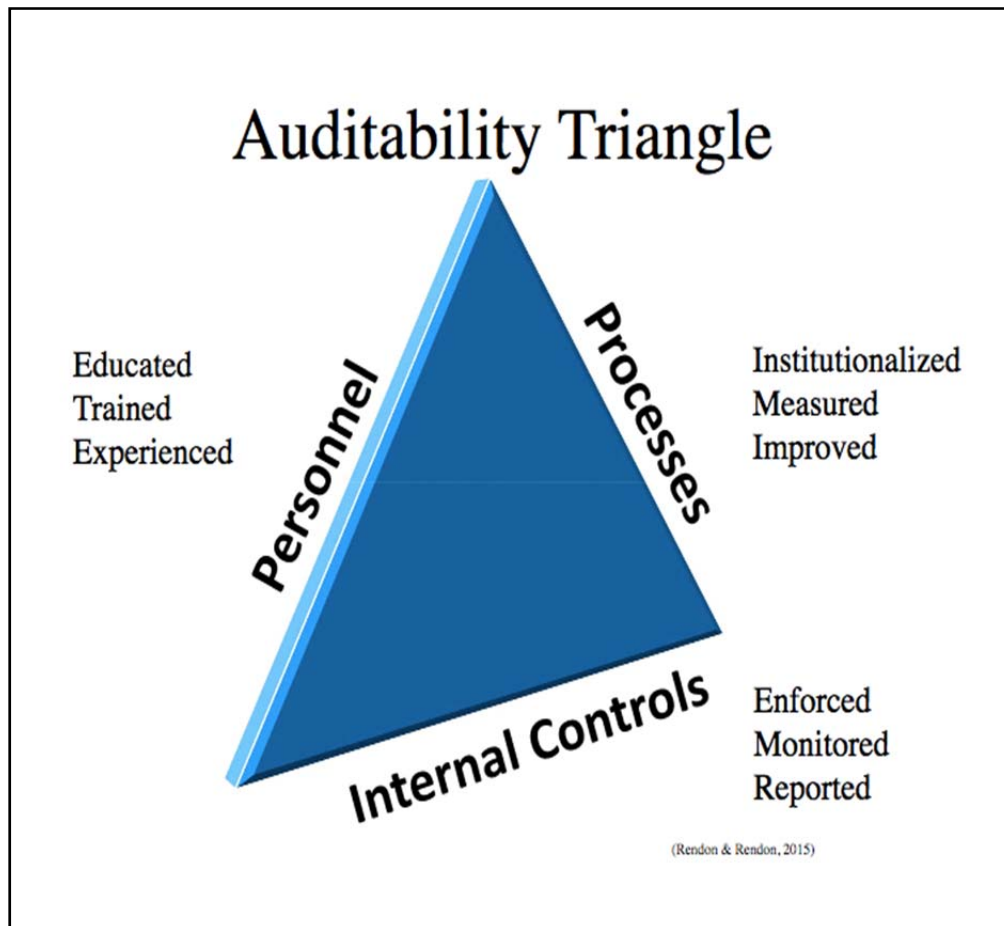


Figure 32. Auditability Triangle. Source: Rendon and Rendon (2015).

### **3. Maximizing the Knowledge about Perspectives of Auditors and Auditees**

Based on U.S. best practices, two templates have been prepared to assist in understanding the auditor's and auditee's perspectives. The auditor's framework, including importance of audit readiness, U.S. auditing standards, types of audits, stages of an audit, audit opinion, audit evidence and documentation, audit procedures, and professional ethics, is illustrated in Table 29. The auditee's framework, encompassing the auditee's responsibility, U.S. best practices, auditability triangle, training of auditees, and an audit readiness checklist, is illustrated in Table 30. These two templates can assist Pakistan Army financial management officers in preparing their military units and other military organizations for audit readiness.

Table 29. Auditor’s Framework to Conduct an Audit

Importance of Audit Readiness	U.S. Auditing Standards	Audit Types	Stages of An Audit	Auditor’s Opinion	Audit Evidence and Audit Documentation	Audit Procedures	Professional Ethics
<ul style="list-style-type: none"> <li>• Promotes accountability of taxpayer’s money</li> <li>• Develops public confidence</li> <li>• Deters fraud</li> <li>• Ensures managers obtain accurate financial information to make decisions</li> <li>• Gives assurance to political leadership that military is good steward of public funds</li> </ul>	<p><b>AICPA.</b> Auditing standards for private companies</p> <p><b>PACOAB.</b> Auditing standards for public companies</p> <p><b>GAGAS.</b> Governmental auditing standards</p>	<p><b>Internal Audits.</b> Evaluation to ensure efficiency, and effectiveness</p> <p><b>Compliance Audits.</b> Compliance with rules, laws, standards, and regulations</p> <p><b>Financial Audits.</b> Audit of financial statements</p> <p><b>Operational Audits.</b> Focus on efficiency, effectiveness, and economy of operations</p>	<ul style="list-style-type: none"> <li>• Plan the audit</li> <li>• Obtain understanding of client, client’s environment, and IC</li> <li>• Assess risk of material misstatement</li> <li>• Perform further audit procedures</li> <li>• Complete the audit</li> <li>• Form an opinion and issue the audit report</li> </ul>	<p><b>Unqualified.</b> Compliance with GAAP and consistency in accounting principles</p> <p><b>Qualified.</b> When one or more items of FS are not presented as per accounting principles</p> <p><b>Adverse.</b> When FS are not fairly presented</p> <p><b>Disclaimer.</b> Unable to determine fairness of FS due to scope limitations</p>	<ul style="list-style-type: none"> <li>• Obtain sufficient appropriate audit evidence to support the opinion expressed in the auditor’s report.</li> <li>• Audit documentation also known as working paper, includes record of planning and performance of work, the procedures performed, evidence obtained, and conclusion reached by the auditors</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection of records or documents</li> <li>• Inquiry</li> <li>• External information</li> <li>• Inspection of tangible assets</li> <li>• Observation</li> <li>• Recalculation</li> <li>• Performance</li> <li>• Analytical procedures based on professional judgement</li> <li>• Scanning of data</li> </ul>	<ul style="list-style-type: none"> <li>• Responsibilities</li> <li>• Public Interest</li> <li>• Integrity</li> <li>• Objectivity</li> <li>• Independence</li> <li>• Due Care</li> <li>• Scope and nature of service</li> </ul>

Adapted from Whittington and Pany (2012); AICPA (n.d.); PCAOB (n.d.); and GAGAS (2011).

Table 30. Auditee’s Educational Framework to Prepare for Audits

Auditee’s Responsibility	U.S. Best Practices	Auditability Triangle	Training of Auditees	Audit Readiness Checklist
<ul style="list-style-type: none"> <li>• Prepare documents</li> <li>• Have effective internal controls</li> <li>• Educate staffers</li> <li>• Follow auditing standards</li> <li>• Know steps and procedures of audits</li> <li>• Provide fair presentation of financial statements</li> <li>• Cooperate with auditors and assist them in auditing</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare in accordance with GAGAS and AICPA</li> <li>• Use audit readiness checklist issued to all services</li> <li>• Follow OMB A-123</li> <li>• Follow FIAR Tier I and Tier II</li> <li>• Follow FIAR strategy for four prioritized waves to achieve full financial statement audit</li> <li>• Use U.S. Army Financial Management Command procedures to ensure audit readiness</li> </ul>	<p><b>Personnel</b></p> <ul style="list-style-type: none"> <li>• Educated</li> <li>• Trained</li> <li>• Experienced</li> </ul> <p><b>Processes</b></p> <ul style="list-style-type: none"> <li>• Institutionalized</li> <li>• Measured</li> <li>• Improved</li> </ul> <p><b>Internal Controls</b></p> <ul style="list-style-type: none"> <li>• Enforced</li> <li>• Monitored</li> <li>• Reported</li> </ul>	<ul style="list-style-type: none"> <li>• FIAR- like courses</li> <li>• Seminars</li> <li>• Workshops</li> <li>• Training by internal auditors</li> <li>• Designating audit officers in every military unit to conduct internal audits</li> <li>• Publishing of small and simplified auditability pamphlets</li> <li>• Education of staff who are responsible for documentation</li> <li>• Education of officers on financial management</li> <li>• Motivational training on compliance of rules and regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Prepared list for all types of audits as per steps of audits</li> <li>• Financial statement checklist and supporting documents</li> <li>• Rules and regulations</li> <li>• Auditor’s procedures</li> <li>• Audit evidence and audit documentation</li> <li>• Identified requirements of auditors</li> </ul>

Adapted from Whittington and Pany (2012); AICPA (n.d.); PCAOB (n.d.); and GAGAS (2011).

THIS PAGE INTENTIONALLY LEFT BLANK

## LIST OF REFERENCES

- ACCA. (2016). Internal controls. Retrieved from <http://www.accaglobal.com/my/en/student/exam-support-resources/fundamentals-exams-study-resources/fl/technical-articles/internal-controls.html> On 16 March 2017
- Accounting tools. (n.d.). Retrieved February 26, 2017, from <http://www.accountingtools.com/vertical-analysis>
- AICPA. (2002). Excerpted from statement on auditing standards. *Management anti-fraud programs and controls*. Retrieved from [http://www.sox-expert.com/uploads/files/Management%20Antifraud%20Programs%20and%20Controls%20\(SAS%2099%20Exhibit\).pdf](http://www.sox-expert.com/uploads/files/Management%20Antifraud%20Programs%20and%20Controls%20(SAS%2099%20Exhibit).pdf)
- AICPA. (2014). Importance of internal control in financial reporting and safeguarding plan assets. Retrieved March 13, 2017, from [https://www.aicpa.org/InterestAreas/EmployeeBenefitPlanAuditQuality/Resources/PlanAdvisories/DownloadableDocuments/Plan\\_AdvisoryInternalControl-hires.pdf](https://www.aicpa.org/InterestAreas/EmployeeBenefitPlanAuditQuality/Resources/PlanAdvisories/DownloadableDocuments/Plan_AdvisoryInternalControl-hires.pdf)
- Agbejule, A., & Jokipii, A. (2008). Strategy, control activities, monitoring and effectiveness. *Managerial Auditing Journal*, 24(6), 500–552. Retrieved from <http://www.emeraldinsight.com.libproxy.nps.edu/doi/pdfplus/10.1108/02686900910966503>
- Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, 23(4), 589–609. Retrieved from <http://www.jstor.org/stable/2978933>
- Altman, E. I. (2000). Predicting financial distress of companies: Revisiting the Z-score and ZETA models. Retrieved from <http://pages.stern.nyu.edu/~ealtman/PredFnclDistr.pdf>
- Altman Z-Score +. (n.d.). Frequently asked questions. Retrieved March 4, 2017, from <http://www.altmanzscoreplus.com/faq>
- American Institute of Certified Public Accountants (n.d.). About American Institute of Certified Public Accountants (AICPA). Retrieved on March 16, 2017, from <http://www.aicpa.org/Pages/default.aspx>
- Auditor General of Pakistan (AGP). (2016). *Annual report*. Retrieved from [http://www.agp.gov.pk/downloads/audit\\_reports/DAGP-AR-2015-16.pdf](http://www.agp.gov.pk/downloads/audit_reports/DAGP-AR-2015-16.pdf)

- Averkamp, H. (2016). Accounting coach. Retrieved from <http://www.accountingcoach.com/cash-flow-statement/explanation/1>
- Balatbat, M. C. (2011). Management efficiency performance of construction businesses: Australian data. *The National Public Accountant*, 38(2), 6–7. Retrieved from <http://search.proquest.com.libproxy.nps.edu/abicomplete/docview/855075782/fulltextPDF/A770BAACA5A2464DPQ/1?accountid=12702>
- Beaver, W. H. (1966). Financial ratios as predictors of failure. *Journal of Accounting Research*, 44, 71–111. Retrieved from <http://www.jstor.org/stable/2490171> on 03 march 2017
- Beneish, M. D. (1999). The detection of earnings manipulation. *Financial Analysts Journal*, 55(5), 24–36. Retrieved from <http://www.jstor.org/stable/4480190>
- Beneish, M. D., Lee, C. M. C., & Nichols, D. C. (2013). Earnings manipulation and expected returns. *Financial Analysts Journal*, 69(2), 57–82. Retrieved from <http://libproxy.nps.edu/login?url=http://search.proquest.com/docview/1352760224?accountid=12702>
- Blum, M. (1974). Failing company discriminant analysis. *Journal of Accounting Research*, 12(1) 1–25. Retrieved from [http://www.jstor.org/stable/2490525?seq=1#page\\_scan\\_tab\\_contents](http://www.jstor.org/stable/2490525?seq=1#page_scan_tab_contents)
- Bobber, M. (2015). Fixed asset controls and reporting. Retrieved from <http://web.a.ebscohost.com.libproxy.nps.edu/ehost/pdfviewer/pdfviewer?vid=6&sid=9841f70a-0f39-4a7f-86f6-e316d8966c60%40sessionmgr4008&hid=4104>
- Brealey, R. A., Myers, S. C., & Allen, F. (2014). *Principles of corporate finance* (11th ed.). New York, NY: McGraw-Hill Irwin.
- Brigham, E. F., & Houston, J. F. (2007). *Fundamentals of financial management* (5th Edition). Mason, OH: Thomson South-Western.
- Burnaby, P.A. & Hass, S. (2011). Internal auditing in the Americas. *Managerial Auditing Journal*, 26(8), 734–756. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/893408445/fulltextPDF/BE B4E9E481F24CF7PQ/4?accountid=12702>
- Coburn, D. C., & Cosby, C. J. (2016). The United States Army Financial Command's critical role in the Army's drive towards audit readiness. *The Armed Forces Comptroller*, 61(4), 9–13. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1889701304/EC11D8E7D9CE4F7FPQ/1?accountid=12702>



- Connolly-Somich, S. (2013). Achieving & sustaining audit readiness. *American Society of Military Comptrollers*, 58 (4), 7–11.  
<http://search.proquest.com.libproxy.nps.edu/docview/1477194925/fulltextPDF/44EFCF46C88549ACPQ/1?accountid=12702>
- COSO. (2013). Update on transition to COSO 2013. Retrieved from  
<https://chapters.theiia.org/St%20Louis/ChapterDocuments/COSO%20Deck%20St%20Louis%20IIA%20October%2016%202014.pdf>
- COSO. (2013). COSOS as integrated framework. Retrieved from  
[https://global.theiia.org/standards-guidance/topics/Documents/Executive\\_Summary.pdf](https://global.theiia.org/standards-guidance/topics/Documents/Executive_Summary.pdf)
- COSO. (n.d.) About us. Retrieved March 16, 2017 from  
<https://www.coso.org/Pages/aboutus.aspx>
- Crouse, V. A. (2012). Building audit capability. *The Armed Forces Comptroller; Alexandria*, 57(3), 36–37. Retrieved from  
<http://search.proquest.com.libproxy.nps.edu/docview/1143634606/21C2D16C93604495PQ/1?accountid=12702>
- Davis H. Z., & Peles, Y. C. (1993). Measuring equilibrating forces of financial ratios. *The Accounting Review*, 68(4), 725–747. Retrieved from  
<http://search.proquest.com.libproxy.nps.edu/abicomplete/docview/218586152/fulltextPDF/FE9632FEA60D4C98PQ/1?accountid=12702>
- Department of Defense (DOD) instruction 5200.35. (2013, May). *Managers' Internal Control (MIC) Program Procedures*. Retrieved from  
<http://www.dtic.mil/whs/directives/corres/pdf/501040p.pdf>
- DiNapoli, T. P. (2010). Red flags for fraud. *State of New York, Office of the State Comptroller*, 1–14. Retrieved from  
[https://www.osc.state.ny.us/localgov/pubs/red\\_flags\\_fraud.pdf](https://www.osc.state.ny.us/localgov/pubs/red_flags_fraud.pdf)
- Easton, M. (2012). Defense financial improvement and audit readiness. *Defense Audit Readiness News December 2012*. Retrieved from  
[http://comptroller.defense.gov/Portals/45/documents/fiar/newsletters/2012-12\\_Defense\\_Audit\\_Readiness\\_News.pdf](http://comptroller.defense.gov/Portals/45/documents/fiar/newsletters/2012-12_Defense_Audit_Readiness_News.pdf)
- Entrepreneur Media, Inc. (2015). Eight factors that determine the financial health of a business. *Entrepreneur*. Retrieved from  
<https://www.entrepreneur.com/article/240611>

- Faello, J. (2015). Understanding the limitations of financial ratios. *Academy of Accounting and Financial Studies Journal*. 19(3), 75–85. Retrieved from <http://web.a.ebscohost.com.libproxy.nps.edu/ehost/detail/detail?vid=8&sid=e1216abe-6982-409d-a7653c91f08e97c6%40sessionmgr4006&hid=4114&bdata=JnNpdGU9ZWhvc3QtbGl2ZSdzY29wZT1zaXRl#AN=113046436&db=bsu>
- Financial Statement Analysis (FSA) Demystified. (n.d.). Just for learning - Read and liked: "Financial Statement Analysis (FSA) Demystified." Retrieved May 22, 2017, from <https://groups.google.com/forum/#!msg/rvsimsrmba2012batcha/BCeUPpq516o/z5zXx6Et0e0J>
- Friedman, J. P. (2000). *Dictionary of business terms* (3rd ed.). Hauppauge, NY: Barron's Educational Series.
- Friedberg, A. & Lutrin, C. (2001). The internal audit in U.S. local government in the 1990s: A status report and challenges. *Journal of Public Budgeting, Accounting & Financial Management*. 13(2), 325–344. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/205057895/abstract/535CD30EE27B4AEBPQ/3?accountid=12702>
- Gates, S. (1993). *101 business ratios: A manager's handbook of definitions, equations, and computer algorithms. How to select, compute, present, and understand measures of sales, profit, debt, capital, efficiency, marketing, and investment*. Scottsdale, AZ: McLane.
- Government Accountability Office (GAO). (n.d.). About government accountability office (GAO). Retrieved March 16, 2017, from <http://www.gao.gov/about/index.html>
- GAO. (2001). Internal controls management and evaluation tools. Retrieved from <https://www.gao.gov/assets/80/76615.pdf>
- GAO. (2005). Financial management: Effective internal control is key to accountability. Retrieved from <http://www.gao.gov/products/GAO-05-321T>
- GAO. (2014). Standards for internal control in the federal governments. Retrieved from <http://www.gao.gov/assets/670/665712.pdf>
- Generally Accepted Government Auditing Standards (GAGAS). (2011). Government auditing standards. Retrieved from <http://www.gao.gov/yellowbook/overview>
- Gorczyńska M. (2010). Accounts receivable turnover ratio: The purpose of analysis in terms of credit policy management. Retrieved from <https://www.ekf.vsb.cz/export/sites/ekf/rmfr/.content/galerie-dokumentu/2014/plne-zneni-prispevku/Gorczynska.Maria.pdf> on 26 April 2017

- Government Accountability Office (GAO). (n.d.). About government accountability office (GAO). Retrieved March 16, 2017, from <http://www.gao.gov/about/index.html>
- Grant, T. J., Ingram, T. L., & Deas, D. D. (2016). Financial health indicators: An analysis of financial statement information to determine the financial health of DOD contractors. Retrieved from Naval Postgraduate School Database.
- Haber, J. R. (2004). Accounting demystified. *Ratios analysis*, 21, 143–149. Retrieved from <http://web.b.ebscohost.com.libproxy.nps.edu/ehost/pdfviewer/pdfviewer?vid=9&sid=b3753c7f-e7f2-4232-8b86-2b742cbae38b%40sessionmgr102>
- Haider, M. (2015). Pakistan, Russia sign landmark defense deal. *Dawn*. Retrieved from <http://www.dawn.com/news/1201473>
- Herron, T. L., & Gilberson, D. L. (2004). Ethical principles vs. ethical rules: The moderating effect of moral development on audit independent judgments. *Business Ethics Quarterly*, 14 (3), 499–523. Retrieved from <http://web.b.ebscohost.com.libproxy.nps.edu/ehost/pdfviewer/pdfviewer?sid=a6ef0830-ae96-41a5-9e57-b5831a1995bb%40sessionmgr103&vid=1&hid=128>
- Husnatarina, F., & Halim, A. (2013). Relationship between the type of auditor opinions with the difference of local government forms in Indonesia. *Review of Integrative Business and Economics Research*, 2(1), 102–119. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1514370928/fulltextPDF/4655D68211CE4A50PQ/2?accountid=12702>
- Imam, A. & Ali, M. A. (2014). Sales activity management (SAM): A practical approach. *BVIMR Management Edge*, 7(2) 1–6. Retrieved from <http://web.b.ebscohost.com.libproxy.nps.edu/ehost/pdfviewer/pdfviewer?sid=0a8a8f2d-07bf-4351-8fd3-85a9daa5f112%40sessionmgr101&vid=5&hid=129>
- The Institutes of Chartered Accountants in Pakistan (ICAP). (2015, February). Financial accounting and reporting II. Retrieved from [http://www.icap.org.pk/wp-content/uploads/students/srbook/FinancialaccountingandreportingII\\_ST.pdf](http://www.icap.org.pk/wp-content/uploads/students/srbook/FinancialaccountingandreportingII_ST.pdf)
- The Institute of Internal Auditors (IIA). (n.d.). The IPPT: The framework for internal audit effectiveness. Retrieved March 20, 2017, from <https://na.theiia.org/standards-guidance/Pages/Standards-and-Guidance-IPPF.aspx>
- Janvrin, D. J., Payne, E. A., Byrnes, P., Schneider, G. P., & Curtis, M. B. (2012). The updated COSO Internal Control–Integrated Framework: Recommendations and opportunities for future research. *Journal of Information*, 26 (2), 189–213. Retrieved from <http://web.b.ebscohost.com.libproxy.nps.edu/ehost/pdfviewer/pdfviewer?vid=5&sid=a3d1b3e6-3e3d-4452-9faa-9565204da992%40sessionmgr104>

- Kennedy, R. D., & McMullen, S. Y. (1973). *Financial statements: Form, analysis, and interpretation* (6th ed.). Homewood, IL: Richard D. Irwin.
- Kostova, S. (2014). Audit procedures for disclosure of errors and fraud in financial statements of Bulgarian companies. *Scientific Annals of the "Alexandru Ioan Cuza" University of Iasi*, 59(1), 49–66. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1416040843/6B4789448A143D2PQ/1?accountid=12702> and: <http://anale.feaa.uaic.ro/anale/en/Arhiva%20revista/110>]
- Knubel, J. 2010. The Department of Defense Financial Audit Journey. *The Journal of the American Society of Military Comptrollers*, 55 (1), 8–11. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/304530086/4C176123138B447EPQ/1?accountid=12702>
- Lane, D. (1983). The operational audit: A business appraisal approach to improved operations and profitability. *The Journal of the Operational Research Society*; Basingstoke, 34(10). Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/231392166/C1E2ADA4C0AB4DDBPQ/1?accountid=12702>
- Lev, B. (1974). *Financial statement analysis: A new approach*. Englewood Cliffs, NJ: Prentice-Hall.
- Lewis, S. J. (1985). Locking assets in: Internal controls keep resources safe. *Management World*, 14 (1). Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/222360649/A3292200A2C641ACPQ/1?accountid=12702>
- Lipin, M. (2013, March 18). Pakistani buying of Chinese arms makes Beijing 5th biggest exporter. *The Voice of America*. Retrieved from <http://www.voanews.com/a/china-arms-exporter-5th-largest/1623754.html>
- Louwers, T. J., Ramsay, R. J., Sinason, D. H., & Strawser, J.R. (2007). *Auditing and assurance services* (2nd ed.). New York, NY: McGraw-Hill Irwin.
- Marden, R. & Edward, R. (2005). Internal controls for the small business: Skimming and the fraud triangle. *Internal Auditing*, 29(1), 3–10. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/214399880/fulltextPDF/98045D1ABD5E4DDBPQ/1?accountid=12702>
- Mergent. (n.d.). Mergent on Line. Retrieved April 30, 2017, from <http://www.mergentonline.com/basicsearch.php>.

- Miller, M. J. (2015). Achieving audit readiness: When less may be more. *The Journal of Government Financial Management*, 64(1), 48–52. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1711620155/fulltextPDF/F8C97097CAAB44DDPQ/1?accountid=12702>
- Newstex. (2015, March 6). Investopedia stock analysis: Who exactly needs to be paying attention to the time interest earned ratio of a company? *Newstex finance and accounting blogs*. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1660903178/citation/77BC5450D2284DC4PQ/1?accountid=12702>
- Norgaard, C. (1969, December). The professional accountant's view of operational auditing. *Journal of Accountancy*, 128 (6), 45–48. Retrieved from <http://web.a.ebscohost.com.libproxy.nps.edu/ehost/pdfviewer/pdfviewer?sid=acac6a6-e29e-41a4-9a04-1de1dfc62fbb%40sessionmgr4007&vid=12&hid=4101>
- Nurnberg, H. (2001). Minority interest in the consolidated retained earnings statement. *Accounting Horizons*, 15 (2), 119–146. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/208893367/fulltextPDF/D98F15766E7741C8PQ/1?accountid=12702>
- Nworgu, F. C. (2007). Economic importance and growth rate of broiler chickens served fluted pumpkin (*Telfaria occidentalis*) leaves extract. *African Journal of Biotechnology*, 6(2), 167–174. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1658200595/fulltextPDF/47ADF78606764644PQ/22?accountid=12702>
- Office of Inspector General. (n.d.). About IG Inspector General (IG). Retrieved March 16, 2017, from <https://www.oig.doc.gov/Pages/default.aspx>
- Office of Management and Budget. (2004). OMB circular A-123–Management's responsibility for internal controls. Retrieved March 16, 2017, from [https://www2.ed.gov/rms-training/doed\\_cash\\_mgmt\\_fy11/common/cw/data/a123\\_rev.html](https://www2.ed.gov/rms-training/doed_cash_mgmt_fy11/common/cw/data/a123_rev.html)
- Office of the Undersecretary of Defense. (2016). Financial improvement and audit readiness (FIAR) guidance. Retrieved March 18, 2017, from [http://comptroller.defense.gov/Portals/45/documents/fiar/FIAR\\_Guidance.pdf](http://comptroller.defense.gov/Portals/45/documents/fiar/FIAR_Guidance.pdf)
- Omar, N., Koya, R., Sanusi, Z., & Shafie, N. (2014). Financial statement fraud: A case examination using Beneish model and ratio analysis. *International Journal of Trade, Economics and Finance*, 5, 184–187. Retrieved from <http://www.ijtef.org/papers/367-A00013.pdf>

- Oprean, L. & Span, G. A. (2009). Ways of strengthening the statutory audit efficiency. *Annales Universitatis Apulensis : Series Oeconomica*, 11(1), 247–257. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/807501871/fulltextPDF/ED A4CC009FA74E49PQ/1?accountid=12702>
- Pakistan Military Accounts Department. (n.d.). About the Pakistan Military Accounts Department (PMAD). Retrieved January 19, 2017, from <http://www.pmad.gov.pk/index.php?p=index>
- Payne, E. A., & Ramsay, R. J. (2008). Audit documentation methods: A path model of cognitive processing, memory, and performance. *Auditing: A Journal of Practice and Theory*, 27 (1), 151–168. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/216738300/fulltextPDF/60875E356A77447APQ/1?accountid=12702>
- Piechowicz, B. (2006). The management of current assets. *Management theory and studies for rural business and infrastructure development*, 7, 112–114 <http://web.b.ebscohost.com.libproxy.nps.edu/ehost/pdfviewer/pdfviewer?sid=fd963a1b-ae6f-4273-88f3-11ed420bd235%40sessionmgr103&vid=8&hid=118> and <http://mts.asu.lt/mtsrbid/article/view/748>
- Public Company Accounting Oversight Board (n.d.). About Public Company Accounting Oversight Board (PCAOB). Retrieved on March 16, 2017, from <https://pcaobus.org/About/Pages/default.aspx>
- Rendon, J. (2016). *Financial Accounting Handout*. Unpublished manuscript, Graduate School of Business and Public Policy, Naval Postgraduate School, Monterey, California.
- Rendon, J., & Rendon, R. (2015). Procurement fraud in the U.S. Department of Defense. *Managerial Auditing Journal*, 31(6/7), 748–767. <http://www.emeraldinsight.com.libproxy.nps.edu/doi/pdfplus/10.1108/MAJ-11-2015-1267>
- Reuters. (n.d.). Reuter Markets and Stocks. Retrieved April 30, 2017, from <http://www.reuters.com/>
- Salomia, M., & Turlea, E. (2013). Financial audit and the credibility of financial situations. *Supplement of Quality - Access to Success Journal*, 14(2), 250–254. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1366367133/fulltextPDF/A B9DB1D86D864B3CPQ/11?accountid=12702>

- Secretary of the U.S. Navy. (2008). Department of the Navy managers' internal control manual. Retrieved from <https://doni.documentservices.dla.mil/SECNAV%20Manuals1/5200.35.pdf> on 15 March 2017
- The Securities and Exchange Commission of Pakistan. (n.d). *About the Securities and Exchange Commission of Pakistan (SECP)*. Retrieved January 19, 2017, from <https://www.secp.gov.pk/about-us/vision-and-mission/>
- The State office of Minnesota. (2014). The state auditor. Statement of position the importance of internal controls. Retrieved from [https://www.auditor.state.mn.us/other/Statements/importanceic\\_0703\\_statement.pdf](https://www.auditor.state.mn.us/other/Statements/importanceic_0703_statement.pdf).
- Stickney, C. C., Weil, R. L., Schipper, K., & Francis, J. (2010). *Financial accounting: An introduction to concepts, methods, and uses* (13th ed.). Mason, OH: South-Western Cengage Learning
- Syed, B. S. (2014). Pakistan's indigenous defense production reaches \$1.5bn. Retrieved February 8, 2017, from <http://www.dawn.com/news/1151174/pakistans-indigenous-defence-production-reaches-15bn>
- Temte, A. (2005). Financial Statement Analysis. Retrieved from <https://ebookcentral.proquest.com/lib/ebook-nps/reader.action?docID=3016138&ppg=712>
- Theuri, P. M. (2002). Are your clients listening to their financial statements? *The National Public Accountant*, 29–31. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/232339729/fulltextPDF/1523074A816C4B99PQ/3?accountid=12702>
- Tomkins, R. (2015). Report outlines FY 2001–FY 2014 Pakistan FMS deals. United Press International. Retrieved from <http://www.upi.com/Defense-News/2015/05/08/Report-outlines-FY-2001-FY-2014-Pakistan-FMS-deals/8831431105254/>
- Tsagem, M. M., Aripin, N., & Ishak, R. (2015). Impact of working capital management, ownership structure and board size on the profitability of small and medium-sized entities in Nigeria. *International Journal of Economics and Financial Issues*, 5, 77–83. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1701253092/3F305BE2EA8D417APQ/7?accountid=12702>

- Under Secretary of Defense (Comptroller). (2012). Defense financial improvement and audit readiness. The Commander's audit readiness checklist. Retrieved on April 20, 2017, from [http://comptroller.defense.gov/Portals/45/documents/fiar/Commanders\\_Audit\\_Readiness\\_Checklist.pdf](http://comptroller.defense.gov/Portals/45/documents/fiar/Commanders_Audit_Readiness_Checklist.pdf)
- U.S. Small Business Administration. (n.d.). Working capital. Retrieved on February, 2017, from <https://www.sba.gov/loans-grants/get-ready-apply/check-your-credit/working-capital>.
- Valipour, H., Moradi, J., & Farsi, F. D. (2012). The impact of company characteristics on working capital management. *Journal of Applied Finance and Banking*, 2(1), 105–125. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/1315885512/fulltextPDF/2C75F7D4C5C2463FPQ/15?accountid=12702>
- Walther, L. (2016). *Financial accounting* (2016–2017 ed.). Retrieved from <http://www.principlesofaccounting.com/>
- Wells, J. T. (2001). Irrational ratios. *Journal of Accountancy*, 192(2), 80–83. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/206764249/43BA0060F0ED4E23PQ/2?accountid=12702> on 6 March 17.
- Whittington, O. R., & Pany, K. (2012). *Principles of auditing and other assurance services*. (18th ed.). New York, NY: McGraw-Hill Irwin.
- Winicur, B. (1993). Analysis for decision making. Retrieved From <http://search.proquest.com.libproxy.nps.edu/abicomplete/docview/232375090/fulltextPDF/CC1B11EFDC4849A8PQ/2?accountid=12702>
- Wodynska, A. (2008). Transactions security tools in account receivable management. *Contemporary Economics*, 2(1), 111–124. Retrieved from <http://search.proquest.com.libproxy.nps.edu/docview/914769620/3F305BE2EA8D417APQ/2?accountid=12702>
- World Atlas. (n.d.). 29 Largest Armies in the World. Retrieved February 8, 2017, from <http://www.worldatlas.com/articles/29-largest-armies-in-the-world.html>



## **INITIAL DISTRIBUTION LIST**

1. Defense Technical Information Center  
Ft. Belvoir, Virginia
2. Dudley Knox Library  
Naval Postgraduate School  
Monterey, California