

THE RELATIONSHIP BETWEEN AN EDUCATIONAL INSTITUTION
ACCOUNTING CURRICULUM AND THE BODY OF KNOWLEDGE REQUIRED
FOR THE CERTIFIED MANAGEMENT ACCOUNTANT EXAM

A Dissertation

Submitted to the
Faculty of Argosy University/Sarasota
College of Business and Information Technology
in Partial Fulfillment of
the Requirements for the Degree of
Doctor of Business Administration

by

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Argosy University Sarasota

February, 2010

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2010

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Abstract

The CMA exam covers a number of broad topics that are taught in colleges and universities such as economics, finance, management, information systems, statistics, and management accounting. The CMA exam requires individuals to master a body of knowledge in different skill levels of content coverage consisting of knowledge, comprehension, application, analysis, synthesis, and evaluation. The CMA program “embodies an extensive and advanced level curriculum requiring candidates to demonstrate thorough knowledge of accounting, finance, and important related fields, as well as the ability to integrate accounting and financial information into the business decision process” (https://www.imanet.org/about_faqs.asp). The purpose of this study is to see if there is a relationship between an educational institution’s accounting curriculum and the body of knowledge required for the CMA exam.

Dedication

This dissertation is dedicated to my wife, Ellen J. Ilk, whose support, patience, and understanding allowed me to pursue and complete my dream.

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CHAPTER ONE: THE PROBLEM

Introduction

The Institute of Management Accountants (IMA) is the oldest accounting association in the United States. According to the IMA website, its vision is to be “the world’s leading association for management accounting and finance professionals.” IMA’s mission is to “provide a dynamic forum for management accounting and finance professionals to develop and advance their careers through certification, research and practice development, education, networking, and advocacy of the highest ethical and professional practices” (http://www.imanet.org/about_mission.asp).

However, management accounting is also about data. Management accounting concerns data that is needed to operate organizations. This is data utilized by people inside the organization as opposed to financial accounting which is data utilized by people and organizations outside of the firm (Garrison, Noreen & Brewer, 2006). Kapoor, Islam, and Mustafa (2006), defines management accountants as “strategic financial management professionals who combine accounting expertise with professional management skills to provide leadership, innovation, and integration perspective to organizational decision-making” (p.113). According to Brewer (2008), management accountants “need to be able to create strategies that provide sustainable sources of competitive advantage and to manage the enterprise risks that threaten the attainment of strategic objectives” (p.30). The IMA website defines management accountants as “professionals involved in designing and evaluating business processes, budgeting and forecasting, implementing and monitoring internal controls, and analyzing synthesizing,

and aggregating information – to help drive economic value”

(https://www.imanet.org/about_management.asp).

The Certified Public Accountant (CPA) is a professional designation for individuals in terms of understanding financial accounting, auditing, and individual taxation. An individual who has a CPA designation is recognized as a professional by the public. However, over two-thirds of accounting graduates do not go into public accounting and instead work either in business, government, or non-profit organizations (Tatikonda, 2004).

From the 1940's through the 1970's, IMA's predecessor organization, National Association of Accountants (NAA), was concerned that there was no public recognition of management accountants. In 1965, the president of NAA established a Long Range Objectives Committee (LROC) to study the future of NAA for the next five to ten years. In 1968, the LROC completed its study and reported to the President and Board of Directors of NAA. One of the recommendations from the LROC was the establishment of an education competency with a certification exam and experience requirement. In 1970, the Education and Planning Committee of NAA established an ad-hoc committee to study the development and timetable for establishing an education competency. In 1971, the ad-hoc committee's report and recommendations were approved. In 1972, the Certified Management Accountant (CMA) was born. The first exam was administered in December 1972 across 22 locations with 410 participants. The exam at that time consisted of five parts with sixty-one individuals passing the exam. In 1973, 54 individuals received their CMA certification. There were seven individuals who passed

all five parts of the exam but did not have the experience requirement. Eventually all seven individuals received their CMA certificate (Meyers & Koval, 1994).

The purpose of the CMA program is to “provide an objective measure of an individual’s knowledge and competence in the field of management accounting” (CMA Candidate Handbook, p.1). The CMA program “embodies an extensive and advanced level curriculum requiring candidates to demonstrate thorough knowledge of accounting, finance, and important related fields, as well as the ability to integrate accounting and financial information into the business decision process” (https://www.imanet.org/about_faqs.asp). According to the CMA Competency Map, CMA’s “are professionals who contribute to the greater public good through the efficient and effective utilization of financial and non-financial resources” (p.1)

Problem Background

According to the IMA’s website, there are four CMA program objectives. They are:

- 1) to establish management as a recognized profession by identifying the role of the management accountant and financial manager, the underlying body of knowledge, and a course of study by which such knowledge is acquired, 2) to encourage higher education standards in the management accounting field, 3) to establish an objective measure of an individual’s knowledge and competence in the field of management accounting, and 4) to encourage continued professional development by management accountants.

(https://www.imanet.org/certification_started.asp) (Note: In 1991, the NAA changed the name of its organization to the IMA.)

The CMA program consists of two parts – a CMA exam and an experience component. Once both parts are completed, the individual can be certified as a CMA. Once the individual is certified as a CMA, there is a continuing education requirement to maintain certification. The CMA exam requires individuals to master a body of knowledge in different skill levels of content coverage consisting of knowledge, comprehension, application, analysis, synthesis, and evaluation. This body of knowledge is divided into four topic areas which are also represented in the four parts of the CMA exam. The parts are: 1) Part I – business analysis (economics, internal controls, quantitative methods, and financial statement analysis), 2) Part II – management accounting and reporting (budget preparation, cost management, information management, performance measurement, and external financial reporting), 3) Part III – strategic management (strategic planning, marketing, corporate finance, decision analysis, and capital budgeting) and 4) Part IV – business application (organization management, communication, behavioral issues, and investment decisions).

Each of the four parts is divided into sub parts and sub-sub parts. Table 1 reflects the sub-parts and sub-sub-parts of each part of the CMA exam.

Table 1

List of Sub-Parts and Sub-Sub Parts

<u>Part</u>	<u>Sub-Part</u>	<u>Sub-Sub Part</u>
I	5	30
II	5	23
III	5	25
IV	4	13

Source: Content specification outline for the Certified Management Accountant Examination (https://www.imanet.org/certification_preparation_content.asp)

Note: Part IV consists of several essay questions and problems requiring written and quantitative responses. Questions include content from Parts I, II, III as well as 4 additional topics.

Each sub-part has a level of coverage which is defined as follows:

Level A - requiring the skill levels of knowledge and comprehension,

Level B - requiring the skill levels of knowledge, comprehension, application, and analysis, and

Level C - requiring all six skill levels (knowledge, comprehension, application, analysis, synthesis, and evaluation)

(Content Specification Outlines for the CMA Exam, p.3)

Each sub-sub part lists specific content outline which serves several purposes. The content outlines are intended to:

- establish the foundation from which each examination will be developed
- provide a basis for consistent coverage on each examination
- communicate to interested parties more detail as to the content of each examination part
- assist candidates in their preparation for each examination
- provide information to those who offer courses designed to aid candidates in preparing for the examinations.

(Content Specification Outlines for the CMA Exam, p.1)

Also, there is a suggested reading list of over 26 books to assist candidates in preparing for the CMA exam. If a candidate passes one or more parts, but not all four parts of the CMA exam, the candidate can retake the parts not passed at the next issuance of the CMA exam. The candidate needs to pass all four parts as part of the certification process. Candidates for the CMA certification, in addition to passing the CMA exam, must complete two continuous years of professional experience in management accounting or financial management. This requirement can be completed prior to or within seven years of passing the CMA exam (CMA Candidate Handbook, p.3).

Purpose of the Study

Cheng (2007) referencing a 1966 American Accounting Association (AAA) definition, defines accounting as “an information system that identifies, records, and communicates the economic events of an organization to interested users” (p.581). According to Tatikonda (2004), at the turn of the 19th century due to the increase growth, size, and complexity of business, there was a demand for practicing and qualified accountants. U.S. accountants, utilizing a combination of the Scottish and English model, developed a series of certification exams. The Certified Public Accountant (CPA) exam was born in the late 19th century, and the initial exam was given in New York State.

In the 1940's, it was determined that a college degree would be a prerequisite for the CPA exam. Colleges and universities started to alter their curricula to meet the needs of the CPA exam (Tatikonda, 2004). In the 1950's, the American Institute of Certified Public Accountants (AICPA) Commission on Standards and Experience recommended that the experience requirements for the CPA certificate be completed after completion of the CPA exam. According to Tatikonda (2004), it was “the beginning of the tail (CPA

exam) wagging the dog (accounting curricula) and the transformation of university accounting program into CPA mills” (p.67). This led to many educational institutions (colleges and universities) to gear their accounting curriculum to passing the CPA exam. As changes occurred in the CPA exam, they also occurred in the accounting curriculum.

However, as indicated in a number of studies, over two-thirds of accounting graduates do not enter public accounting (Tatikonda, 2004). Dutta and Lawson (2007), citing the U.S. Bureau of Labor Statistics, stated that less than 10 percent of accountants work in public accounting in the long-term. There are three major developments that have changed the business environment, which will cause a change in how accounting students are trained for the business environment. The three changes are: 1) technology makes information preparation and dissemination very inexpensive, 2) globalization has significantly impacted business and how business is conducted, and 3) the concentration of financial assets in large market investors, such as mutual funds, pension funds, and individual investors has shifted the balance of corporate power (Russell, Kulesza, Albrecht, & Sack, 2000).

According to Hannon (2005), “the new work of a management accountant is to understand, analyze, and report on the major business processes of the company” (p.59). Management accounting is focused on operations and the value chain and by nature is forward looking and seeks opportunities for growth and improvement (http://www.imanet.org/about_management.asp). As such, there has been an increased emphasis on the CMA exam and CMA certification process. The CMA designation has often been referred to as a “mini-MBA.” The CMA designation is “an objective measure of knowledge competence in the field of management accounting” (Tatikonda, 2004, 70).

The CMA exam covers a number of broad topics that are taught in colleges and universities such as economics, finance, management, information systems, statistics, and management accounting. The CMA exam “is designed with a user orientation, i.e., to show how managers use accounting information for planning, controlling, decision making, and to make continuous improvements” (Tatikonda, 2004, 70). The purpose of this study is to see if there is a relationship between an educational institution accounting curriculum and the body of knowledge required for the CMA exam.

Research Hypothesis

The purpose of this study is to utilize qualitative research methodology to address the following research hypothesis:

Ho (null): There is no correlation between an educational institution accounting curriculum and the body of knowledge required for the CMA exam.

H1 (alternative): There is a correlation between an educational institution accounting curriculum and the body of knowledge required for the CMA exam.

Limitations and Delimitations

This study will utilize data from an IMA database concerning the candidates who have taken the CMA exam and candidates who have passed the CMA exam. The IMA does not have a formal name for this database. For the purpose of this study, it will be known as the CMA Completer Database. An extraction from this database for the years 2000 through 2008 will be utilized in determining which educational institutions produced the most CMA's. The IMA has been maintaining a database on CMA candidates since 1987; however, the last upgrade to this database occurred in 2000. There

have been no functional changes to the database since 2000. There have been upgrades to the operating system but not to its functionality.

The specific topical areas for content specification of the CMA exam are listed in the CMA Learning Outcome Statements (LOS) (dated July 2008). The CMA LOS lists specific knowledge items and is divided into 4 parts, 19 sub-parts, and 91 sub-sub-parts. The CMA LOS reflects the body of knowledge needed to pass the CMA exam. For purposes of this study, the content specification for the CMA exam is the CMA LOS.

There are inherent limitations in utilizing data from the same source, from the quality of the data to the integrity of the data. One of the limitations is that when the CMA candidates electronically register for the CMA exam, they will list the name of the educational institution and a code of the educational institution (from a pull-down menu) of the last educational institution attended. Thus, if a CMA candidate completed a Bachelor of Science (B.S.) in Accounting at one educational institution and completed a Master of Business Administration (MBA) at a different educational institution, the school and school code listed for the candidate would be the educational institution in which the MBA was completed. A second delimitation is that the pull-down menu for the educational institution codes reflects the codes the IMA acquired from the Educational Testing Service (ETS) in 1999. Those codes have not been updated and as such do not reflect changes in a school's name (e.g. going from a college to a university status), mergers of educational institution, or if an educational institution opened new campuses. While ETS has updated its educational institution codes since, the CMA Completer Database reflects the educational institution codes from 1999. When a student electronically registers for the CMA exam and does not see the name of the educational

institution (and associated educational institution code), those fields are left blank. The name of the educational institution is posted in an “other” field. The IMA staff researches the educational institution and develops a code for the educational institution. The name of the educational institution and corresponding code are data entered into the CMA Completer Database. If in future years another CMA candidate from the same educational institution registers for the CMA exam, the previous educational institution’s name and corresponding code are utilized. Therefore, there could be more than one educational institution code for an educational institution.

Definitions

According to the IMA website, the *CMA designation* “is an advanced, globally recognized credential that supports management accounting and finance professionals who drive business performance from inside organizations” (http://www.imanet.org/about_faqs.asp). The program is designed to develop critical thinking and decision-making skills.

The *CMA exam*, consisting of four parts, is an intense assessment of an individual’s knowledge, evaluation, and application in the areas of business analysis, management accounting and financial management, strategic management, and business applications.

The IMA website defines *management accounting* as the internal business-building role of accounting and finance professionals who design, implement, and manage internal systems that support effective decisions; support, plan, control the organization’s value-creating operations, and support an organization’s strategic goals. The IMA website also states that management accounting is about building value inside the organization by focusing on the economic analysis of productive processes, sales, and customer

profitability. Management accounting is focused on operations and the value chain and by nature is forward looking and seeks opportunities for growth and improvement. (www.ima.net.org/about_management.asp).

The IMA website defines *management accountants* as strategic financial management professionals who integrate accounting expertise with advanced management skills to drive business performance inside organizations. They serve as business partners within an organization providing expertise and analysis necessary for sound business decisions, planning, and support. Management accountants create value rather than measure it; provide leadership, innovation, and integrate perspective to organizational decision making; and integrate financial and non-financial measures of an organization's effectiveness (www.ima.net.org/about_management.asp).

Significance of the Study

The study will allow faculty in educational institutions (colleges and universities) to know what courses are needed to prepare students for the CMA exam. The curricula of those educational institutions that produced the most CMA's will be compared against the body of knowledge needed to pass the CMA exam. The study will provide educational institutions a roadmap in terms of what course(s) are required to prepare students for the CMA exam as well as what changes are needed in an educational institution's curriculum to better prepare students for the CMA exam. In 1985, a study comparing one educational institution's accounting curriculum to then the body of knowledge required for the CMA exam, was conducted. This purpose of this study is to determine if such a correlation exists, which would, in turn, allow educational

institutions, if they desire, to make necessary changes to their accounting curricula to prepare students for the CMA exam.

Overview of the Study

As stated earlier, utilizing a qualitative method, the purpose of this study is to determine if there is a relationship between an educational institutions' accounting curriculum and the body of knowledge required for the CMA exam. Schools then can determine what changes need to be made to better prepare students for the CMA exam.

Chapter 2 is a literature review of the history of accounting, history of management accounting, history of accounting education, and a history of management accounting education.

Chapter 3 discusses the methodology, research design, and data collection used for this study.

The results of the study will be presented in Chapter 4, and the interpretation of the results will be in Chapter 5. Chapter 5 will also present conclusions drawn relative to the research hypothesis as well as any recommendations for further study.

Summary

The purpose of this study is to see if there is a relationship between an educational institution's accounting curriculum and the body of knowledge required for the CMA exam.

CHAPTER TWO: LITERATURE REVIEW

Introduction

The purpose of this chapter is to present a literature review on the topic of accounting education especially management accounting education. The literature review will begin with a synopsis of the history of accounting, history of management accounting, history of accounting education, and a history of management accounting education.

History of Accounting

The history of accounting demonstrates complex relationships among accounting, organizations, and society. As society progresses throughout history, from an agricultural society to an industrial society to an information age society, people needed to develop a means of communicating business information. This communication, recording, analyzing and presenting information was necessary for society to expand (Chen, 1998).

Accounting in the Ancient World

When man started to barter goods and services, he needed a method for keeping track of what he owed to other individuals and what was owed to him. Accounting development is dependent on environmental circumstances and conditions. Basu and Waymire (2006) state, “recordkeeping is a culturally evolved institution that enables complex economic interaction and plays an integral and pervasive role in human evolution” (p.202).

Cuneiform accounting was found in ancient Sumerian, Akkadian, Assyrian, Babylonian, and Persian writing, around 8,000 to 3,000 BC. These writings recorded business transactions, the transfer of goods, and the accumulation of debts and cash

(Mattesich, 1998). In ancient Sumerian, Akkadian, Assyrian, Babylonian cuneiform, accounting was used by the arrangement of wedged shaped characters. There were three features of Sumerian record-keeping. First, Sumerian records were for the purpose of record exchange; there was no initial intent to use these records to produce summary financial statements or measures like income or a balance sheet. Second, formal record-keeping by the Sumerians coincided with the emergence of new urban centers, forms of exchange, laws, and measurement technologies. Third, Sumerians' record-keeping evolved over a thousand years from simple record-keeping techniques to more complex ones that facilitate multilateral exchange across time (Basu & Waymire, 2006).

Ancient Egypt used papyri to keep track of grain and dates issued and grain and dates receipts. There was no one standard monetary unit. As such, payment and issuance of credit was done in various monetary units, such as silver, salt, or grain. Inventories were maintained on lists and the books were balanced infrequently or closed after an important transaction. Egypt had three seasons; winter, summer, and floods (4 months each) and the months were divided into three times ten days. Years were determined by the year in the reign of the king. While there was no formal accounting period, there was an informal accounting period depending upon the day and year the king was crowned. The date of the season in one year could be different in another year when there was a new king. Bookkeeping on papyri reeds eventually led to bookkeeping on clay containers (Stevelinck, 1985).

Mattesich (1998) stated that for token accounting, tokens inserted into a clay container corresponded to debit entries while the pressing of a token on the surface of a container was meant to convey the credit total of the entity. Mattesich (1998) references

the Schmandt-Besserat (1983) thesis that “token accounting was a precursor to writing as well as counting and economic control” (p.3).

Token accounting eventually led to cuneiform accounting. There were four different types of cuneiform tablets. The first are small perforated tablets that serve merely as tags. The second are larger tablets with numerical notations, which also fulfill auxiliary tasks. The third type of tablet was larger and contained divisions of columns and partitions, each of which revealed specific information related to the other units of the same tablet. The obverse side of the tablet contained data which was identified as debits and contained numerical information as well as text. The reverse side contained the credits, which listed the total of the numbers on the obverse side. The fourth tablet was similar to the third tablet except it did not contain the numerical totals (Nissen, Damerrow, & Englund, 1993).

“Apart from clay tablets manifesting the surveying and measurement of arable land, there existed tablets containing the management and bookkeeping of real estate, usually public fields” (Mattessich, 1998, p.20). Another crucial component of bookkeeping was keeping track of animal husbandry (sheep, goats, large cattle, donkeys, horses, and pigs). “The accounts dealt not only with productivity in terms of the production of milk, cheese, wool, fleece or fur, and textiles, but even processed dung for building or heating material and the propagation of the animal themselves” (Mattessich, 1998, p.20). Yet there needed to be a place to conduct business.

The temple, besides being used for religious purposes, was also the site for the conduct of business. Goods and services were bought and sold and credit and payments were made. In addition, the temple was also a creditor in issuing loans and promissory

notes. Loans were made to individuals and businesses. “The temple was organized as a redistributive system dealing with incoming rents and gifts and outgoing rations and wages” (Garbutt, 1984, p.94). Payment which included monetary coins, precious metals, as well as animals, and minerals were assessed by an assayer. The assayer would assess the value of the payment in terms of a monetary value of what was owed to the receiver (king, temple administrator, or seller). There was no single monetary currency, therefore, the assayer determined a standard for the exchange of goods. The assayer posted exchange rates for goods for current and future times (Garbutt, 1984).

Accounting in Ancient Rome

At its zenith, Roman influence extended to all of Europe, Great Britain, Northern Africa, the Middle East, and parts of India. Due to its vast extent and endurance, Rome influence was on language, religion, law, architecture, philosophy, government, and commerce. Commerce and trade within the Roman republic and later in the Roman Empire was extensive. Rome was a legalistic society and this had an impact on how Romans performed their accounting functions and maintained their records.

The roman account books were divided into two main groups; the first group consisted of those books which were mainly used for private purposes, and the second group was comprised of books which were used to record commercial transactions (Martinelli, 1997).

The first set of books originated in the tributum when citizens under oath had to state the amount and composition of real and personal property on which they had to pay their tax. The penalties were large if the citizen failed to make an accurate statement of their

property. As such, the head of each family maintained a record, *liberullus familiae* or *liber patrimonii* of property held by the family. Loans, including maturity date were maintained in a book called the *kalendarium*. This book also included due dates and payment dates for interest payments (Martinelli, 1977).

The second set of books included the *adversaria*. The law *De Edendo* (from the Digestum AD 533) described the function of the *adversaria* as follows: “Its purpose, ... is to keep a record of debts, purchases, credits, obligations, all together and for trade purposes” (Martinelli, 1977, p.5).

The *adversaria* was similar to a daybook, a descriptive chronological collection of each day’s business transactions. There was no specific format to be utilized in the *adversaria* nor was there any formal training in completing the *adversaria*. Data from the *adversaria* was transferred to the *codex* or *tabulae rationum*. The *codex*, a two page book, was similar to a ledger. On one page receipts and disbursements were debited or *accepta*. On the opposite page, *expensa*, items credited were reported. The *codex* was the written representation of oral contracts. The debtor, in his *codex*, wrote the name of the creditor and the amount due and the creditor, in his *codex*, wrote the name of the debtor and the amount owed. This dual entry system involved the integrity of both parties to ensure obligations were valid (Martinelli, 1977).

Martinelli (1977), referencing Pliny the Elder (AD 70) wrote, “on one page all the disbursements were entered, on the other page all the receipts; both pages constitute a whole for each operation of every man” (p.7).

While the *adversaria* was similar to a daybook, it could not be admitted into evidence at a trial. Martinelli (1977), references a trial in which Marcus Cicero defended Quintus

Roscus in a lawsuit, against Fannius, concerning a debt and property. Cicero kept questioning Fannius on the accuracy of his books. When Fannius, to prove his claim, produced the *adversia*, and not the *codex*, Cicero stated:

Are you so devoted to yourself, have you such an intense admiration of yourself, as to ask for money not on the strength of your account books, but of your day-books? It is presumptuous to quote one's ledgers (*codex*) as a witness; but is it not sheer madness to produce rough notes (*adversia*) of one's entries and erasures? But if day-books (*adversia*) have the same value, the same exactness, and the same authority as account books, what is the use of making a ledger (*codex*), of putting everything down, of keeping an ordered list of transactions or a record of old documents? But if, because we have no faith in day-books, we have adopted the practice of compiling ledgers, ought authority and sancity to be attributed before the judge to what is considered by all to be feeble and unimportant? Why is the reason we write our notes carelessly but make up our ledgers carefully? What is the reason? It is because day-books last for a month, ledgers for ever; day-books are immediately destroyed, ledgers are religiously preserved; day-books embrace the memory of a moment; ledgers attest the good faith and conscientiousness which ensure a man's reputation for all time; day-books are ill-arranged, ledgers are put together in order. That is why no one ever produces day-books in court; it is ledgers that are produced, it is account books that are read. (Martinelli, 1977, p.6)

Cicero won and Fannius lost.

Accounting in Northern Italy

Mills (1994), stated that there were three reasons for the increase in economic activity (after 1100) in Northern Italy's Golden Triangle – Genoa, Venice, and Florence. One, there was an increase in population which required greater amounts of goods and services. The increase in population generated greater economic activity and there was an increase in the size of urban centers. Second, there was an increase in trade and economic opportunities due to the Crusades. The Crusaders needed to be supplied with various goods and services. In addition, there was interaction between the Crusaders and the culture of the Middle East. The Crusaders, upon returning to Europe had a demand for various goods and services from the Middle East. This increased trade with several Middle Eastern firms. Third, there was an increased flow of trade between the Italian Golden Triangle and Northern Europe, especially after the development of the printing press.

Martinelli (1977), believed that the development of the administration of large estates, increased commercial activity, and growing banks necessitated the development of double entry bookkeeping. “Double entry bookkeeping is defined as any bookkeeping system in which there was a debit and credit entry for each transaction, or for which the majority of transactions were intended to be of this form” (Mills, 1994, p.84).

Martinelli (1977), referencing Rossi (1896), thought that the improvement of the ledger occurred with: a) the general improvement in writing, b) the introduction of Hindu numerals, and c) the widespread use of paper that was cheaper than parchment.

Martinelli (1977), referring to the work of Fasbio Besta, claimed to have found an early application of double entry booking in 1406 concerning a ledger of the Soranzo

Fraternity (family owned association). Besta believes that double entry bookkeeping was adopted by Florentine accountants towards the end of the fourteenth century. The increase in economic activity gave rise to growing and large trading, commercial, and financial centers. “Accounting was in the hands of practioners who were concerned with practical business problems” (Mill, 1994, p.85).

Luca Paciolo

Luca Paciolo was a Franciscan friar, author, mathematician, merchant’s assistant, teacher of students in abbaco schools (schools attended by the sons of merchants and craftsman), college professor, and occasional architect (Weis & Tinius, 1991; Sangster, Stoner, & McCarthy, 2007).

Paciolo did religious and mercantile training with Franciscan friars; however, he had an affinity for mathematics, Paciolo stated, “from the time I had soft fingernails” (Weis and Tinius, 1991, p.54). Piero della Francesca adopted Pacioli as his protégé and encouraged Paciolo in his studies. Paciolo would accompany Francesca on his trips to the Duke of Urbino and study in the Duke’s extensive library. Francesca introduced Paciolo to Leone Battista Alberti, a leading writer and scholar. Alberti was friends with several popes and close to leading scholars (Weis & Tinius, 1991).

Alberti exposed Paciolo to the academic and university environment and encouraged Pacioli to write. However, key to Alberti’s counseling of Paciolo was Alberti’s belief in “God-given validity of mathematically determined proportions” (Weis & Tinius, 1991, p.55). Upon Alberti’s death, Paciolo took the vows of the Franciscan Order and emphasized the moral and spiritual nature of his work. Paciolo stated “The purpose of

every merchant is to make an honest and legitimate profit for his living. Wherefore, they must begin all their transactions in the name of God and put his holy name on every account” (Weis & Tinius, 1991, p.55).

Paciolo wrote in Italian and not in Latin, the language of academics. Latin was the language of manuscripts and treatise; Italian was the language of the local population. By writing in Italian, Paciolo was able to reach a wide audience of shop owners, business people as well as other Italian scholars.

Paciolo wrote the *Summa de Arithmetica Geometrica, Proportioni et Proportionalita* as a treatise on mathematics, geometry and business. It took Paciolo 30 years to write the *Summa*, which was published in 1494. Weis and Tinius (1991), referencing Brown (1963), who stated it was “the most exhaustive and widely read mathematical work in the whole of Italy” (p.3). Paciolo in deference to his patron Duke Federizo of Urbino, included a 27 page treatise titled *Particularis de Computis et Scripturi* detailing the Venetian method of bookkeeping. It was a system for recording and summarizing the results of a commercial activity. Because of the printing press and Paciolo writing in Italian, the *Summa* was able to be translated into Dutch, German, French, Russian, and English. This allowed the double-entry bookkeeping system to be utilized by a variety of businesses throughout Europe.

Paciolo credits Cotrugli (1458) with having originated the method of double-entry bookkeeping. “To give the trader without delay, information as to his assets and liabilities” (Langer, 1958, p.483).

Paciolo cites three principles for success in business; cash, good accountants, and a system (Langer, 1958).

Paciolo utilized a conceptual description in the treatise in describing how to conduct the functions of bookkeeping and running a business. The treatise, in utilizing three books (daybook, journal, and ledger), describes how to record transactions, how to balance the accounts and carry them forward, how to prepare profit and loss account, and how to prepare a net worth account (Langer, 1958; Sangster, Stoner, & McCarthy, 2007).

Paciolo stated, “I have tried above all to give the material a practical slant based on examples of this kind as may easily be seen from the methodical arrangements of its contents” (Taylor, 1942, p.190). According to Sangster, Stoner, and McCarthy (2007), “the bookkeeping treatise is a prime example of matching teaching materials to student needs” (p.451).

Accounting Post Renaissance

Yamey (1964), states that double entry bookkeeping is a “system of single entry, with personal accounts for debtors and creditors as well as a cash account, provides a large part of the information necessary in routine administration” (p.134). Yamey (1964), references Sombert (1924), stated that “double-entry system played an important part in releasing, activating, stimulating or accentuating the rationalistic pursuit of unlimited profits, an essential element in the capitalistic spirit” (p.117). According to Yamey (1964), Sombert (1924), the main thesis was: 1) expressing in qualitative terms the results of business activities, 2) that the information provided allow the capitalistic to allocate capital in the most efficient manner, and 3) allow the separation of business from the owner, while in turn spurn the growth of large business.

Eucken (1951), stated “The knowledge of double-entry bookkeeping was a pre-condition for the South German expansion at the beginning of the sixteenth century. Where this knowledge was lacking or slow to penetrate, as in the Hansa towns, economic development delayed” (p.283).

One of the reasons for the spread of double-entry bookkeeping was bringing order out of chaos and confusion. Double-entry bookkeeping brought an orderly classification of data. It allowed the business owner an advantage in employing capital (Winjum, 1970). By 1600, in England, there were five treatises that had been published on double-entry bookkeeping. By 1800, in England, there were over 100 treatises published on double-entry bookkeeping (Winjum, 1970). “The ability of double-entry bookkeeping to record the economic activities of the merchant within a compact and inter-related data classification system was of tremendous significance to the merchants of sixteenth through eighteenth century England” (Winjum, 1970, p.746).

Winjum (1970), referencing Professor Frederic Lane, thought that there were three reasons why the Venetian system of double-entry bookkeeping became the accepted method in England and Europe. First, by 1500 Northern Italy had twenty-two percent of the printing centers of Europe, including England and Eastern Europe (Mills, 1994). Venice had a significant book trade during this timeframe. Second, Venetian bookkeeping teachers had a distinctive style of entries which produced clarity, cross-reference, and ease in arithmetic calculation. Third, Venetian bookkeeping was useful for merchants whose business transactions involved trading – significant number of accounts receivable and accounts payable. These two accounts are the main accounts for most

businesses. As such, this system was flexible and was able to be exported to other industries.

There was very little development in double-entry bookkeeping from the mid-sixteenth century to the 1800's. (Winjum, 1970). During this period ownership and management of a business were interchangeable. The owners were involved in the management of the firm. The owner knew how well the firm was operating and the profit and loss of the business. Thus, the capital, investment of the owner(s), was an important account and the profit and loss account was of lesser importance. Winjum (1970), stated "the ending balance in the capital account, was therefore a combination of the owner's original capital contribution and its augmentation from profitable" (p.747).

The purpose of the profit and loss account was to assist in the closing process and to transfer the amount to the capital account. "The close relationship between asset valuations and income determination was virtually ignored by the early textbook writers. Their primary concern in asset accounting was for the maintenance of comprehensive asset recording within the ledger" (Winjum, 1970, p.748). However, there was no regular periodic closing. Closing of accounts occurred due to the end of an activity such as the completion of a voyage or harvesting and selling of crops. Winjum (1971), in discussing the profit and loss account of Sir Thomas Gresham (financial advisor to three monarchs of England and a member of the Mercer company), noted that the profit and loss account contained miscellaneous items such as personal expense, household expenses, gifts, rents, expense, and gambling errors. "Thus, the profit and loss account also served as a convenient receptacle for items that apparently could go nowhere else" (Winjum, 1970, p.750).

The owner utilized double-entry bookkeeping to record past transactions. “The primary motivating factor for all of these merchants was the desire to record their business transactions in a systematic manner so that they would have an orderly and organized record of their past activities” (Winjum, 1970, p.754).

Winjum (1971), reviewed the accounting records of Sir Thomas Gresham. Sir Gresham was a financial advisor to the monarchs of England from 1551 to 1579, and served as the monarch’s Antwerp financial agent. Sir Gresham was responsible for obtaining loans for the monarch in the Antwerp money market. In addition, Sir Gresham was a merchant in both import and export activities, and was a founder of the Royal Exchange. Winjum (1971), reviewed Sir Gresham’s accounting records for a six year period from 1546 to 1552. Winjum (1971), determined that Sir Gresham maintained a journal, “ledger, waste book (memorial), book of charges, and a petty cash book” (p.150). Winjum (1971), also determined that “the capital account, which was an amalgamation of Gresham’s personal and business affairs, served a very limited function in his ledger. It was seldom used once the opening inventory was established” (p.150). Winjum (1971), noted that Sir Gresham, as many merchants of his day, did not utilize a profit and loss account for the determination of net income or net loss. There was very little interest in the determination of net income or net loss. Winjum (1971) stated “Gresham, like so many of the merchants of his era, was primarily concerned with the detailed record keeping and control aspects of his accounting system” (p.155).

Accounting Modern Era

The late 19th century saw significant growth and expansion of U.S. Corporations – stock based companies. The ownership and management of the firm separated. This entailed an increased structural reporting system to ensure that owners received sufficient information to evaluate the performance of management (Berle & Means, 1933).

“Due to the growth of manufacturing and commercial interests in the U.S. in the second half of the 19th century, the professional accountant was becoming a necessity” (Romeo & Kyj, 1998, p.32). “Perhaps the most important development, in retrospect for the emergence of the public accounting profession, was the rise of financial capitalism” (Previts & Merino, 1979, p.129). “The rapid growth of railroads and other types of large corporations was inaugurating the age of modern accounting” (Sampson, 1960, p.464).

The expansion of the railroads and the growth of capital intensive industries brought a large amount of foreign investment. However, the Panic of 1873 and the Credit Mobilier scandal brought significant losses to foreign investors. As such, British investors sent British chartered accountants to audit records and monitor operations (Davidson & Anderson, 1987).

In 1874, the first bookkeeping organization was formed, The Bookkeepers Beneficial Association of Philadelphia (BBAP). Its main purpose was to provide sickness and death benefits to its members as well as be a network and employment center. It was a model that other city societies would follow especially New York City (Romeo & Leuby, 2004).

In 1882, in New York City, the Institute of Accountants and Bookkeepers of the City of New York (IABCY) was formed. It is one of the earliest professional accounting

associations in the United States (Previtts & Merino, 1998; Romeo & Kyj, 1998). Its main purpose was to be an educational body for accountants in the New York City area. As stated at its first meeting, the purposes of the IABCY were the “elevation of the moral and intellectual status of each and every member of the profession.” Also, “encourage fellowship among accountants” and “advocating proficiency for its members by having the organization provide presentations of papers on germane themes and a forum for the discussion of questions on accounting and business in general” (Romeo & Kyj, 1998, p.34). Lastly, the formation of the IABCY was to provide sickness and death benefits for the members, something similar to the BBAP. However, during its existence, the IABCY failed to provide this insurance coverage and this failure was one of the reasons for its demise. The motto of the IABCY was knowledge, experience, and integrity (Romeo & Kyj, 1998).

There were two requisites for membership in the IABCY. First, an applicant had to have practical knowledge in bookkeeping. Second, the applicant “had to pass an examination before the Institute committee in which his knowledge of accounts, as well as his moral standing and integrity in the community, were investigated” (Romeo & Kyj, 1998, p.36). This examination prerequisite occurred fourteen years before the first certified public accountant exam. However, there were no written answers to the questions. The IABCY Examining Committee addressing exam requirements in the periodical *The Book-Keeper*, stated that the applicant should be “of good moral character, and (understand) what are usually known as the ‘principles of double-entry bookkeeping’” and “the fact that the applicant is keeping a set of books for a reputable

house in a correct manner is in itself almost a complete answer to the question of his ability” (Romeo & Kyj, 1998, p.36).

In 1880, the first four issues of *The Book-Keeper* reflected a series of articles by Charles Sprague (accountant who eventually became president of the Institute of Accountants). Sprague presented the equation “what I have + what I trust = what I owe and what I am worth” (Romeo & Kyj, 1998, p.37). This is the accounting equation of assets equals liabilities plus owner’s equity. Romeo and Kyj (1998) referencing Previts and Merino (1979), believe that this is the first time (in the United States) that the accounting equation was expressed as an algebraic equation.

In 1886, IABCNY officially changed their name to the Institute of Accounts (IA). The IABCNY wanted to expand its reach beyond the New York City borders and was thinking of becoming a national organization. Also, there was an influence by the English members to distinguish between an accountant and a bookkeeper. The last meeting notification appeared in the January 1907 issues of the *Journal of Accountancy*. In 1940, the last two surviving members of the IA officially merged with the American Institute of Accountants (AIA) (Webster, 1954).

Other bookkeeping and accounting societies started to appear in various cities. Such as Boston, Cleveland, Chicago, Cincinnati, Columbus, Dayton, Detroit, Kansas City, Milwaukee, Pittsburg, and San Francisco (Romeo & Leaby, 2004). The locations tended to be in the industrial and urban areas of the country, and were local in nature as opposed to being a national organization.

Periodicals started to appear on the horizon reflecting the exchange of ideas among a growing number of accountants. Periodicals such as *The Book-Keeper* (July 1880 to May

1883), American Counting Room (July 1883 to November 1883), The Office (July 1886 to May 1891), Business (January 1891 to December 1901), and Accountics (April 1897 to September 1900) (Romeo & Leuby, 2004).

In 1887, the American Association of Public Accountants (AAPA) was formed, on a similar basis as the British Institute of Chartered Accountants. The purpose of the AAPA was:

... to associate into a society or guild for their mutual benefit and advantage, the best and most capable public accountants practicing in the United States, and through such Association to elevate the profession of public accountancy as a whole, and to promote the efficiency and usefulness of such society by compelling the observance of strict rules of conduct as a condition of membership, and by establishing a high standard of professional attainments through general education and knowledge.

(Roberts, 1987, p.99)

Wilkinson (1928) stated, “the American Association of Public Accountants is a professional guild composed of Public Accountants in active practice in several states, including a scattering of members on the Pacific coast” (p.3). This organization was meant to be a national association for accountants. A movement developed to make accounting more professional. According to Roberts (1987), “we must know not that he is simply a man who is capable of transcribing the books of concern, but that he can grasp all the surrounding situations as related to the profit and loss account and other essentials” (p.107).

There was a movement by IA and AAPA to legalize public accountants (Wilkinson, 1928). In addition, both associations were concerned about the ability to control the

growing ranks of practitioners, in terms of acceptance in the profession, standards of the profession, and ethics of the profession (Previts & Merino, 1998). As such, in 1896, in the state of New York, a bill - New York Accountants' Law of 1896 – known as the CPA Act was passed. (Romeo & Kyj, 1998; Roberts, 1987). The purpose of the bill was “to regulate the profession of public accountants” (Roberts, 1987, p.103). According to Wilkinson (1928), the IA wanted the “erection of public accountancy into a legally recognized and regulated, instead of a self-constituted, profession” (p.2). “This marked the beginning of an accredited profession of accounting in the United States” (Carey, 1969, p.44).

Webster (1954) attributes the passing of the CPA Act to Melvil Dewey (Secretary to the Board of Regents), Richard Stevens, Richard Chapman, and Francis Gottsberger (all three men were members of AAPA), and Charles Sprague (founding member and former President of IA). Wilkinson (1928) attributes passage of the CPA Act to Henry Harney, President of the IA. Roberts (1987) attributes passage of the CPA Act to Francis Gottsberger and special consideration to Frank Broader (Vice-President of IA) who received CPA certificate no.1. Roberts (1987) and Wilkinson (1928) attributes Sprague to the drafting of the bill.

“The establishment of a required examination provided accountants with a more professional image, similar to the one provided lawyers by the bar examination. Furthermore, these laws helped ensure a market for the services of those passing the examination” (Wootton & Wolk, 1992, p.1).

However, there was not a national standard for the CPA examination. Each state determined its own requirement for a candidate to take the exam as well as the exam

questions. In addition, the passing rates for the CPA exam were extremely low. This led to criticism that those individuals who were grandfathered in their CPA certificates were having a monopoly on the profession by restricting entrants to the profession. (Previtts & Merino, 1998; Roberts, 1987; Magil, 1987). As such, in 1916, the AAPA reorganized and became the American Institute of Accountants (AIA). (Previtts & Merino, 1998; Sriram & Vollmers, 1997). This reorganization allowed the AIA to admit new members on an individual basis. “A major purpose, overriding others, appeared to bring under the control of the institute all practioners who for one reason or another has formerly belonged to no professional group at all” (Previtts & Merino, 1998, p.196). The requirement for membership was five years of experience and successfully passing the AIA examination.

In 1957, the AIA changed their name to the American Institute of Certified Public Accountants (AICPA) (Romeo & Kyj, 1998). This change reflected that the make-up of the members were CPAs and that the organization was a professional association of CPAs.

At the 1894 annual meeting of the AAPA, the membership voted to establish a standard reporting on the balance sheet. The standard voted by the membership was “resolved, that the method of stating should be in order of quickest realization” (AICPA, 1937, p.5). This realization statement started with assets, listed in order of liquidity, and then liabilities.

Arthur Dickinson, British born and British educated, managing partner of the U.S. practice of Price Waterhouse & Company, presented a paper concerning the income statement at the 1904 World Congress of Accountants. Dickerson’s paper concerned the “accounting principles for determining profit or loss, and the format of a modern income

statement, directed primarily to capital intensive industry, were established” (Previtts, 1984, p.5).

In 1902, the shareholders of U.S. Steel Corporation, then the largest corporation in the world, decided that “a full disclosure of the firm’s financial facts, properly attested to, would enhance its public acceptance” (Davidson & Anderson, 1987, p.113). In 1903, the first auditor’s report for U.S. Steel was issued.

The Federal Trade Commission (FTC) and the Federal Reserve Board (FRB) were concerned about the quality of information shown on the financial statements. The FTC vice-chairman Edward Hurley indicated that the FTC might have to issue accounting standards for each of the major industries that the FTC was a regular of. The FTC needed reliable data in order to perform its regulatory duties. Hurley suggested that “consideration might be given to the possibility of developing a register of public accountants whose audit certificates would have to be acceptable to the Commission and the (Federal Reserve Board)” (Carey, 1969, p.130). Hurley also wanted auditing instructions, “which would serve as a guide to accountants, bankers, credit men and the business public ... that would at least show clearly the level below which the accountant could not go and certify the alleged verity of the accounts” (Sriram & Vollmers, 1997, p.70).

In addition, the FRB was concerned about the creditworthiness of corporations in terms of their issuance of commercial paper. Banks were concerned about the quality of financial data to ascertain the creditworthiness of its borrowers. In addition, bankers needed to know the adequacy of collections in terms of loans being made. (Davidson & Anderson, 1987; Sriram & Vollmers, 1977; Carey, 1969; Zeff, 1984).

Discussions ensued between AIA and various government officials concerning the reliability of financial statements. The AIA prepared a document concerning auditing and accounting standards. This document was prepared by John Scobie and an adoption of a Price Waterhouse internal memorandum concerning auditing procedures with small and medium firms (DeMond, 1951; Previts & Merino, 1979). This document was issued in April 1917 by the FRB as Federal Reserve Bulletin titled *Uniform Accounts*. (Davidson & Anderson, 1987; Sriram & Vollmers, 1997).

The preface of the bulletin stated: “The following tentative proposal for a uniform system of accounting to be adopted by manufacturing and merchandising inventory concerns ... is now reprinted for a more general distribution” (Davidson & Anderson, 1987, p.113). This document was reissued and re-titled in 1918 as *Approved Methods for the Preparation of Balance Sheet Statements*. This document became the authority concerning minimum requirements for balance sheet audits (Davidson & Anderson, 1987). In 1929, the document was updated, reissued and retitled by FRB to *Verification of Financial Statements*, which was considered to be the “accountant’s bible” (Previtts, 1984).

However, since audits were voluntary, AIA did not set authoritative accounting standards or limit management choices in terms of accounting procedures (Sriram & Vollmers, 1997). This deference to corporate management “maintained the profession’s relationship with those with whom there were social and financial linkages” (Sriram & Vollmers, 1997, p.74). AIA could control the qualifications of its members and build its reputation to increase the public’s confidence in the organization.

During the 1920's there was a concern within the profession that the government, Federal Trade Commission, Federal Reserve Board, Interstate Commerce Commission, as well as other government entities, would set accounting policy and standards.

Zeff (1984), references Dr. William Riley, a Harvard economics professor, who wrote an article in the September 1926 issue of *The Atlantic Monthly*, in which Ridley referred to current accounting procedures as “enigmatic accounting” (p.380) and “failure to disclosure the method of valuation (of asset), whether it be of property or of stock in trade” (p.390).

Ripley (1926) stated, “Let the word go forth that the Federal Trade Commission is hence forward to address itself vigorously to the matter of adequate and intelligent corporate publicity” (p.399). Ripley's suggestion that the FTC develop accounting disclosure standards had an immediate impact. Zeff (1984), referenced George O. May, a senior partner at Price Waterhouse & Company. In a 1926 letter to the New York Times, May stated:

... unless some effective steps are taken to meet criticisms such as those voiced by Professor Ridley, the result will be some sort of bureaucratic control, and I am satisfied that through proper cooperation methods can be devised, without resort to government, which will be more effective and at the same time less burdensome and vexations than control by a government body is likely to be. (Hunt, 1936, p.42)

In a 1926 address to the AIA, May favored disclosure methods to value capital assets and any “extraordinary profit or extraneous profit” (May, 1926, p.324). In 1932, May was head of the Committee on Cooperation with Stock Exchanges (an AIA formal committee) to cooperate with various stock exchanges concerning disclosure requirements. The

largest of the exchanges and the one with the most influence is the New York Stock Exchange (NYSE). May's committee proposed that corporations listed on the NYSE:

... formulate and approve a list of accounting methods used in the preparation of their financial statements; give assurance that the methods so adopted will be followed consistently from year to year, but that any material deviation should be disclosed; and furnish the list to the Exchange so that any stockholder might, upon payment of a fee, request a copy. (Zeff, 1984, p.45)

In addition, May's committee defined accounting principles as "a general law or rule adopted or professed as a guide to action; a settled ground or basis of conduct or practice" (May, 1937, p.423). In 1933, the AIA formed a new committee, the Special Committee on Development of Accounting Principles, with May as its chairman. The purpose of the Special Committee was to formulate accounting principles and standards. However, in its first report (issued in October 1934), the Special Committee was reluctant to issue standards for the accounting profession. An excerpt from the first report:

... since principles of accounting cannot be arrived at by pure reasoning, but must find their justification in practical wisdom, the Committee believes that the Institute should proceed with caution in selecting from the methods more or less commonly employed those which should be accorded the standing of principles or accepted rules of accounting. (Zeff, 1984, p.453)

This approach brought several negative editorials from Eric L. Kohler, editor of *The Accounting Review*, the journal of the American Association of University Instructors in Accounting (AAUIA). Dr. Kohler expressed disappointment in the lack of action by the AIA. "Its recommendations are surface considerations and give no indication of any

sound approach to the more general problem from a solution is not so urgently necessary” (Kohler, 1934, p.334).

In 1935 and 1936, the AAUIA reorganized as the American Accounting Association (AAA). One of the official purposes of AAA is “to develop accounting principles and standards, and to seek their endorsement or adoption by business enterprises, public and private accountants, and governmental bodies” (Zeff, 1966, p.40). At the AAA first executive committee meeting in 1936, SEC Commissioner George C. Mathews “asserted the need for an authoritative literature for use by governmental agencies” (Zeff, 1966, p.43). In June 1936, AAA executive committee issued a *Tentative Statement of Accounting Principles Affecting Corporate Reports*. The SEC’s Chief Accountant, Carmon G. Blough, commented at AAA’s inaugural meeting that the AAA principle statement was a “real contribution to the accounting profession” (Zeff, 1984, p.455).

In addition to the growing influence by AAA in accounting principles and standards, the SEC was exerting greater pressure on AIA to establish accounting principles and standards. The SEC, in April 1938, issued Accounting Series Release (ASR) No.4, which challenged AIA to provide “substantial authoritative support” for accepted accounting principles (Zeff, 1972).

The AIA in response to the issue, expanded the members and responsibilities of the Committee on Accounting Procedures (CAP). The CAP was expanded from 8 to 22 members. The increased members included representatives from each of the major accounting firms, as well as from academia. In addition, Carmon Blough had retired as SEC’s Chief Accountant and he became a member of CAP, and George May became the

vice-chairman of CAP. The CAP membership in 1938-1939 read like a “Who’s Who” of the “best-known technical experts in the U.S. accounting profession” (Zeff, 1984, p.457).

The expansion of duties included issuing accounting pronouncements without reference or authorization from the AIA executive committee. The CAP still utilized the research division of the AIA. The first director and coordinator of research was Thomas H. Sanders, an accounting professor at Harvard Business School, a consultant to the SEC from 1934-1935 and lead author of AIA 1938 publication *A Statement of Accounting Principles* (Zeff, 1984).

The CAP, from 1939 to 1959, issued 51 accounting research bulletins (ARB). The CAP’s influence increased significantly when the SEC’s Chief Accountant, William Wertz, stated that the SEC would accept the authority of the CAP (Edward & Shildneck, 1987).

However, issues arose after the establishment of CAP in 1939. First, there was a philosophical conflict at CAP. One of the first decisions by CAP was not to develop a comprehensive statement of accounting principles or conceptual framework. The CAP, on a case-by-case basis, would deal with specific individual problems (Davidson & Anderson, 1987). Should an authoritative body insist on the accounting profession to accept only one accounting method when another accounting method has the support of several corporations? This conflict was apparent in terms of the number of dissents and who was dissenting when ARB’s were issued. During a twelve year period, 1946-1958, nine ARBs had between two to six dissents. These disagreements reflected differences of opinion of asset valuation and income determination methods (Zeff, 1984).

Second, the Controllers Institute of America (later renamed The Financial Executive Institute) complained that they did not have sufficient time to comment on draft ARB's before they were issued. Third, the AAA was gaining influence in addressing accounting principles on a case-by-case basis. From 1950 to 1954, AAA issued several principle statements and supplemental statements. Even George May commented on AAA's approach:

The American Accounting Association from the time of its first pronouncement has sought to relate specific provisions to a broad concept. It would seem that the Institute must successfully undertake a similar task before it can claim with reason to be either the leading authority or one of the leading authorities upon the subject. (Grady, 1962, p.278)

Fourth, there was quite a bit of criticism by Leonard Spacek, managing partner of Arthur Andersen & Co. From 1956 to 1959, in a series of speeches and articles, Spacek criticized the CAP as yielding to industry pressure. He also stated that financial statements reflected the "application of antiquated accounting principles" (Spacek, 1956, p.1). Spacek felt that due to the lack of consistency in the applicability of accounting principles, comparability was difficult (Zeff, 2001).

Fifth, several times during the CAP's existence, the SEC Chief Accountant had disagreements with decisions of the CAP. For example, current-operating performance concerned the utilization of changing prices to determine net income. The SEC Chief Accountant did not want price changes to affect the determination of net income. The AIA and CAP were "sensitive to the need to retain its credibility with the SEC" (Zeff, 1984, p.461).

The above issues led AICPA President Jennings to appoint a special committee chaired by Weldon Powell, senior technical partner at Haskins & Sells. Powell recommended that the CAP be replaced by an Accounting Principles Board (APB) and an autonomous research department, called Accounting Research Division (ARD). The ARD would issue Accounting Research Studies (ARS) and the APB's conclusions would be based on the ARS (Davidson & Anderson, 1987). The hope was that research would reduce conflicts on the Board and would lead professionals to find agreement (Zeff, 2001; Zeff, 1984). As with the CAP, a two-thirds majority of the Board was necessary to approve an APB opinion. In addition, each of the APB opinions carried a note similar to what was listed on earlier ARB, stating that the authority of the opinion rested on "general acceptability" (Davidson & Richardson, 1987). The APB formed in 1959.

The first two ARS's issued, *The Basic Postulate of Accounting*, and *The Cash Flow Analysis and Funds Statement*, were well received and provided widespread agreement among the profession. However, the third ARS issued, *A Tentative Set of Broad Accounting Principles for Business Enterprises*, caused a firestorm among members of the APB. The purpose of ARS No.3 as stated "emphasized the measurement of assets and liabilities and suggested that departures from historical cost valuation and the realization convention might be appropriate in certain cases" (Davidson & Anderson, 1987, p.117). The corresponding proposed APB opinion resulted in eight of the eighteen members of the APB dissented, which resulted in less than a two-third majority needed to pass the proposed opinion. The APB did not issue an opinion on ARS No.3. Instead, the APB stated, "The Board believes ... that while these studies are valuable contributions to accounting theory, they are too radically different from present generally accepted

accounting principles for acceptance at this time” (Davidson & Anderson, 1987, p.117). Carey (1969) stated, “nothing more was done for many years to implement the broad objectives of establishing a framework of principles within which specific problems might be dealt with consistently” (p.97).

The Revenue Act of 1962 brought an investment credit into the system. There were two ways to reflect the credit on the financial statements; deferred method or flow-through method. The research department recommended the flow-through method and the Chief Accountant at the SEC wrote a letter to the APB indicating a preference for the flow through method. However, the APB voted for the deferred method which was indicated under APB Opinion No.2. Seven members of the APB dissented to the opinion and three of the dissenters stated that their firms’ would not follow the opinion. After significant discussion, the SEC issued ASR No.96, stating that there is “substantial authoritative support” for both methods and either method would be acceptable for financial statement purposes. The SEC’s rebuke of the APB Opinion No.2 caused quite a stir in the accounting profession and business community. The APB issued Opinion No.4 which stated either method would be acceptable (Davidson & Anderson, 1987).

During the mid to late 1960’s, Wall Street was swept up in a significant amount of mergers and acquisition (M&A) activity. This activity forced the APB to face accounting issues associated with M&A. The accounting issues associated specifically with pooling of interest caused significant consternation among members of the APB. The APB was able to gather the sufficient support (two-thirds majority of the Board) by splitting the issue into two opinions; Opinion no.16 and Opinion no. 17. The discussions and actions of the APB revealed deep fissures and “it became increasingly clear that the growing

complexity of economic life required a full-time standard setting group” (Davidson & Anderson, 1987, p.118). Also, “the APB compiled a record of dissents and qualified assents on matters involving asset valuation and income determination which exceed that of the Committee of Accounting Procedures” (Zeff, 1984, p.446).

The heads of the major accounting firms were not pleased with the deliberations of the APB. Ralph E. Kent, managing partner of Arthur Young & Company, wrote a letter dated November 11, 1970, to the APB stating, “A number of developments over the past several months have raised some doubt in my mind as to whether the present APB organization is the most appropriate ongoing mechanism for the establishment of accounting principles” (Zeff, 1984, p.448). The chairman of Arthur Anderson & Company, Harvey E. Kapnick, in a letter to the APB, dated November 16, 1970, wrote, “The Accounting Principles Board, in our view, has not successfully carried out its mission nor does it currently give promise of doing so” (Zeff, 1984, p.448). On November 17, 1970, Robert Trueblood, head of the accounting policy group at Touche, Ross & Company wrote, “we are presently reconsidering our entire participation in the affairs of the Board” (Zeff, 1984, p.448).

In August 1970, the AAA established a Committee on Establishment of an Accounting Commission (CEAC). The purpose of CEAC was “to study the feasibility and desirability of a commission to inquire into the formulation of accounting principles” (Zeff, 1984, p.464). The CEAC was in contact with the APB and the AICPA concerning its purpose. The CEAC recommended the establishment of a commission of inquiry and in February 1971, the AAA executive committee approved the CEAC report. However,

the executive committee of the AICPA requested the AAA to delay any action until publication of the Wheat report.

In 1971, the AICPA Board of Directors appointed two major committees. One committee, chaired by Trueblood considered the objectives of the financial statements. The second committee, chaired by former SEC Commissioner Frances Wheat, studied the “process and means by which accounting principles should be established” (Davidson & Anderson, 1987, p.122).

Members of the Trueblood Committee and Wheat Committee included members of the AAA. For example, George Sorter, a member of CEAC was appointed research director of the Trueblood Committee. Also appointed as member of the Trueblood Committee were the AAA’s presidents, 1968-1969 Sidney Davidson and 1970-1971 Don Edwards. David Solomons, the CEAC chairman was named to the Wheat Committee and became the principal draftsman of the Wheat Committee’s report (Zeff, 1984).

The Trueblood Committee published their report in 1973. The report “emphasized the importance of useful information to investors and others in their economic decision-making process” (Davidson & Anderson, 1987, p.122).

In March 1972, the Wheat Committee, in a unanimous recommendation, voted that a Financial Accounting Standards Board (FASB) be established, which would be a full-time Board independent of the AICPA. The Board would consist of seven members who would not have any business affiliations. The Board could have some non-CPA’s as members; they needed to “have extensive experience in the financial reporting field” (Davidson & Anderson, 1987, p.122).

The Wheat Committee also recommended the establishment of a Financial Accounting Foundation (FAF) which would provide oversight, funding, and appoint members to the FASB. The trustees of the FAF would be drawn from a variety of organizations that are interested in financial reporting. Also, the Wheat Committee recommended that FASB be assisted by a voluntary organization called Financial Accounting Standards Advisory Council (FASAC) which consists of 20 people.

The APB terminated on June 30, 1973 and FASB was established. With the established of FASB, the AAA did not take any action concerning the CEAC report. Shortly after the establishment of FASB, the SEC issued ASR No.150 which stated, “the Commission has historically looked to the standard-setting bodies designated by the profession to provide leadership in establishing and improving accounting principles”...”principles, standards and practices promulgated by the FASB in its statements and interpretations will be considered by the Commission as having substantial authoritative support and those contrary to such FASB promulgation will be considered to have no such support” (Davidson & Anderson, 1987, p.122). The SEC has supported FASB and the SEC has stated that it would not support an auditor’s attestation that contains an exception to generally accepted accounting principles (GAAP). During the past 30 years the FASB has issued six statements of financial accounting concepts and over 160 statements of financial accounting standards. The FASB has lasted longer than its predecessors and has effectively set accounting principles and standards.

History of Management Accounting

Kaplan (1984) and Maher (2000) divide the history of management accounting (in the United States) into three periods. The first period:

... traces the development of cost accounting practices from the early textile mills and railroads (circa 1850) through the formation of the great industrial enterprises in the U.S. and the emergence of scientific management approach. This phase culminated about 1920. (Kaplan, 1984, p.390)

The second period in the history of management accounting is from 1920 to the early 1980's. The third period in the history of management accounting is from the 1980's to the present (Kaplan, 1984; Maher, 2000).

The First Period of Management Accounting

When the nation was in its youth and composed of small shops – sole proprietorships, the owners of the business were also the managers of the business. As such, the owner understood the cost of the business and if the business was making a profit. “Market prices supplied all the managerial information he needed: namely, prices for finished goods and prices for all the inputs going into his cost of production” (Johnson, 1981, p.512). However, as businesses grew and industries became more complex, owners hired managers to manage and operate the business, it became clear that information systems needed to be developed to coordinate the activities of the organization:

The demand for information for internal planning and control apparently arose in the first half of the 19th century when firms, such as textile mills and railroads, had to devise internal administrative procedures to coordinate the multiple processes

involved in the performance of the basic activity (the conversion of raw materials into finished goods by textile mills, the transportation of passengers and freight by the railroads). (Kaplan, 1984, p.391)

“Cost accounting developed due to the “need to evaluate and control internally administrated production processes” (Johnson, 1981, p.511). Johnson (1972) and Johnson and Kaplan (1987) describe cost accounting methods that were utilized in the 1840’s for maintaining control in mechanized multi-processes textile mills. Johnson (1981) believes that these mills were one of the first modern businesses requiring internal accounting information for decision-making and control. The managerial control was made possible due to the integration of the cost and financial records, and for the conversion of raw material into finished goods.

Johnson (1972), in describing the cost accounting methods for Lyman Mills (utilized in the 1850’s), stated that the mill had two mill accounts, which were work-in-process accounts, depending upon which finished good was being produced. Each mill account was charged with its “respective share of cotton, factory labor, and factory overhead expense” (Johnson, 1972, p.470). “Factory overhead was distributed to each mill account semi-annually according to several criteria such as floor area, number of looms, and the rated horse power of water turbines” (Johnson, 1972, p.470). This cost accounting system assisted management in controlling operations, understanding changes to operations, as well as providing an insight to the profitability of operations.

Tyson (1992) in his study noted that changing economic conditions motivated owners and management to utilize cost accounting information to maintain competitiveness in the marketplace. “Cost information was fully utilized by mill owners and managers, and

in conjunction with other disciplinary and social factors, provided critical information needed to run the business” (Tyson, 1992, p.21).

The introduction of the railroad and its expansion caused new business organizations to be formed.

The corporate form of business served as the essential vehicle capital formation. It established a demand for legions of other corporate entities and a multitude of supporting industries and skills including coal mining, steel milling, and civil engineering, such that huge sums of capital would be needed to finance each new venture. (Previts & Merino, 1998, p.67)

By 1869, listed on the New York Stock Exchange were thirty-eight railroads with \$350,000,000 in capital stock (Previts & Merino, 1998). At the time, railroads were the largest business entities.

The complexity and geographic nature of railroads forced managers to devise more elaborate cost accounting methods to maintain control. The railroads developed various statistics to determine the operational effectiveness as well as maintaining control of its subunits and of the entire organization. “Cost accounting in the railroads became, then, more than just a tool for evaluating internal conversion processes; ... it became a tool for assessing the performance of subordinate managers” (Johnson & Kaplan, 1987, p.37). These methods were adopted by mass production and distribution organizations that were being formed to meet the needs of an expanding marketplace (Chandler, 1977).

The Gilded Age in America, from the 1870’s to the early 1900’s was the development of large corporations for the mass production of personal hygiene products, food products, industrial products as well as raw materials, steel, tobacco, and communications

(Kaplan, 1984; Previts and Merino, 1998). The steel industry utilized cost accounting information for managing its organizations. For example, Andrew Carnegie's general manager William Shinn utilized a voucher system for maintaining control of the activities of the firm.

By this method, each department listed the amount and cost of materials and labor used on each order as it passed through the sub-unit. Such information permitted Shinn to send Carnegie monthly statements and, in time, even daily ones providing data on the costs of ore, limestone, coal, coke, pig iron, spiegel, molds, refractories, repairs, fuel, and labor for each ton of rails produced. These cost sheets (were) called "marvels of ingenuity and careful accounting." These costs sheets were Carnegie's primary instrument of control. (Chandler, 1977, pp.267-268)

Johnson (1981) contends that cost accounting was developed due to the "need to evaluate and control internally administered production processes" that accompanied "new methods for organizing economic activity" (p.511). Thus, Carnegie was able to gather a continuous stream of manufacturing data, from the acquisition of raw materials to the blast furnace to the rolling mill, to monitor and maintain control of operations.

Chandler (1977) and Kaplan (1984) noticed that owners and managers focused on prime costs – direct labor and direct materials, and paid little or no attention to overhead costs. "Carnegie's concern was almost wholly with prime costs. He and his associates appear to have paid almost no attention to overhead and depreciation. This too reflected on the railroad experience" (Chandler, 1977, p.268).

Johnson (1981) reasoned that since firms were in one line of business, scarcity of labor, and firms relied on internal sources of financing, there was no motivation for

allocating the costs of fixed assets to products or periods. The motivation was to reduce material cost or to invest in labor saving devices to increase productivity.

The American manufacturer was averse to retaining old equipment when more labour-productive equipment was available because the old equipment made poor use of his scarce labour. So long as the saving of labour was vouched for, the capital-costs were less important, at least within a fairly wide range, and in the absence of clear ideas and relevant data about the proper components of capital-costs, manufacturers were probably disposed to underestimate rather than overestimate them. (Habakkuk, 1962, p.59)

However, this thought process changed with the development of the scientific management movement by Frederick Taylor, H.L. Gantt, Harrington Emerson, Frank Gilbreth, and others. Prior to industrialization workers tended to be paid at piece rates and thus had a natural motivation to utilize their time efficiently. Under a production process, management monitored workers' performance utilizing a management accounting information system. MacDonald and Richardson (2002) referencing Hopper and Armstrong (1991) stated, "skills levels were reduced and the mental aspects of production incorporated into management" (p.138). Through the Scientific Management movement, standards for production processes were developed, such that labor's performance could be monitored and adjusted. "Henry Gantt and others then developed methods of obtaining standard cost based on standard volume of throughput" (Chandler, 1977, p.279). The drive for physical efficiency led to a drive for economic efficiency (Wells, 1997).

Harrington Emerson (introduced scientific management to the railroad industry and developed the idea of “staff” as advisors to “line” management) wrote a series of articles in 1908 and 1909 describing the elements of standard costing and how it can be used in managerial planning and control. Also, Emerson stressed the differences in variances caused by controllable events and those variances caused by uncontrollable events (Kaplan, 1984; Johnson & Kaplan, 1987). In 1918, G. Charter Harrison (in 1911 installed standard costing system at Boss Manufacturing Company), published a series of articles on standard costing in *Industrial Management*. According to Solomons (1968):

... sureness of touch and comprehensiveness in their treatment which shows standard costing to have left the experimental stage and to have attained the status of established practice. In these articles, he produced the first set of formulas for the analysis of cost variances. (p. 46-47)

The development of cost accounting for industrial companies marked “the expansion of bookkeeping (a record) into accounting (a managerial instrument of precision)” (Littleton, 1933, pp.359-360).

By 1900, a number of large corporations had utilized cost accounting methods and management accounting information systems, developed in the past twenty-five years, to achieve significant efficiency and output. However, entrepreneurs started to integrate firms as they provided new opportunities to increase profits. Firms started to acquire their sources of raw materials as well as their distribution systems. This enabled firms to control the vertical process, from the acquisition of raw materials to the distribution of the product to the customer. “The complex system of internal exchanges characteristic of

the multi-activity firm mitigates the effects of uncertainty in the market” (Johnson & Kaplan, 1987, p.62).

However, a vertical integrated multi-activity firm also creates uncertainty in terms of managing the firm. The new organizations had a centralized unitary management. That is, the firm would have several highly specialized departments (manufacturing, marketing, purchasing, finance, distribution) and each department manager would concentrate on the performance of the specialized department, while top management would concentrate on strategy and coordination among the departments. New management accounting processes and procedures had to be developed in order to maintain control and ensure that organizational objectives were being achieved. Management then devised budgets to coordinate and control the flow of activities among the various departments. In addition, a new measurement was developed, return on investment (ROI), to ensure the organization was meeting top management’s goals and objectives. The “Return on Investment (ROI), to serve both as an indicator of the efficiency of its diverse operating departments and as a measure of financial performance of the company as a whole” (Kaplan, 1984, p.397).

In 1903, the DuPont Powder Company was formed. The DuPont Powder Company, an integrated multi-activity firm, replaced the single activity firm, E.I. duPont de Nemours and Company (which was founded 1804). The DuPont Powder Company was one of the first firms to utilize the new management accounting methods as well as the new performance measurement indicator, ROI. In 1912, DuPont’s chief financial officer, Donaldson Brown, expanded the ROI measurement into its component parts, the operating ratio (net income divided by sales) and the sales turnover (sales divided by

investment). Brown then further subdivided each component into subcomponents so that each department manager knew how his performance affected the firm's (DuPont) overall performance (Kaplan, 1984).

The Powder Company's return-on-investment reporting system compared every aspect of the company's diverse internal operations with alternative uses for capital, while preserving the best of single-activity cost management information about each of the company's specialized activities (Johnson & Kaplan, 1987, p.87).

The new ROI measurement indicator allowed DuPont to establish a capital budget process for both capital and operating budgets. The DuPont Powder Company utilizing its management accounting information system was able to monitor the performance of each of its departments as well as its return on investment.

During World War I (WWI), DuPont discovered and sold several products not related to its primary gunpowder business, such as synthetics, plastics, fibers, and exterior paint additives (Johnson & Kaplan, 1987). The management of this new array of products taxed DuPont's senior management. The centralized integrated unitary management, which concentrated on the vertical process of a single business, led to the multi-divisional form of management. The multi-divisional form of management reduced the chaos and confusion caused by diversification of a centralized integrated unitary management.

The multidivisional organization assigns to top management the task of planning the company's strategy while assigning to subordinate managers the task of coordinating and controlling the operating activities for each of the company's different product lines or sales regions. (Johnson & Kaplan, 1987, p.97)

This new form of organization and management allowed a firm's senior management to extend its span of control and monitor the performance of multiple diverse lines of businesses. Also, senior management could concentrate on the allocation of capital to those businesses and products that produced the greatest ROI over the long term.

In 1908, William Durant, President of Buick Motors, Inc. acquired Oldsmobile Company and several automotive parts companies to form General Motors (GM). In 1909, Durant acquired Cadillac, Oakland (Pontiac), Elmore, Ewing, Reliance Motor Truck Company, and Rapid Motor Vehicle Company. Most of these firms were in poor financial condition due to the Panic of 1907. Each unit was a separate organization and conducted its own marketing, manufacturing, distribution, purchasing, and administrative functions. Durant wanted to consolidate the units, utilize economies of scale and achieve profits greater than what the units could achieve on their own. However, Durant lost control of GM in 1910 to a bankers' trust due to the large amount of debt GM had acquired. In 1911, Durant with Louis Chevrolet, started the Chevrolet Company selling automobiles. Soon though, both men had disagreements on the management of the firm and Durant bought out Chevrolet. In 1916, Durant was able to utilize the profits from the Chevrolet Company to reacquire control of GM. Durant was an entrepreneur not a manager and the size of the organization, one of the largest in the world, was too much for Durant to manage. The DuPont Powder Company, invested in GM and became one of GM's biggest shareholders, owning 43% of GM. In 1920, due to Durant's mismanagement, Pierre du Pont succeeded Durant and became President of GM. Pierre du Pont, with Alfred Sloan (succeeded du Pont as president), John Raskob (vice-president of finance at DuPont and GM), and Donaldson Brown (succeeded Raskob as vice-

president of finance at DuPont and became treasurer at GM) reorganized GM into a multidivisional organization and brought over many of the managers from the DuPont Powder Company and implemented at GM many of the cost measures that were common at DuPont Powder Company. GM's management accounting system accomplished several goals.

GM's management accounting system did three things to help management accomplish "centralized control with decentralized responsibility." First, it provided an annual operating forecast that compared each division *ex ante* operating goals with top management's financial goals. ... Second, the management accounting system provided sales reports and flexible budgets that indicated promptly if actual results were deviating from planned results. ... Third, the management accounting system allowed top management to allocate both resources and managerial compensation among divisions on the basis of uniform performance criteria (Kaplan, 1984, pp.398-399)

GM's management accounting system allowed Alfred Sloan (chief executive officer) to develop a marketing strategy that catered to different consumer needs, as well as provide consumer financing (GMAC – General Motors Acceptance Corporation) that allowed consumers the credit to purchase vehicles. GM became the largest automobile company in the world in the late 1920's and maintained that position for 80 years.

By 1925 DuPont and General Motors had developed many of today's managerial control practices: decentralization via a functional or multi-divisional organization, the ROI performance measure, formal capital appropriation procedures, budgeting and planning cycles, flexible budgets, target ROI pricing based on standard volume,

incentive and profit-sharing plans and a market-based transfer price policy. (Kaplan, 1984, 401)

Kaplan (1984) and Johnson and Kaplan (1987) believe that the current multidivisional organizational structure as well as the current management accounting practices and procedures were developed by 1925. Both authors believe that as such, there was very little change in management accounting until the 1980's.

The Second Period of Management Accounting

J. Maurice Clark, a University of Chicago professor, wrote extensively on overhead costs and their relationship in managerial decision-making. In 1923, Clark wrote *Studies in the Economy of Overhead Costs*, and examined overhead costs in relationship to competition, price discrimination, changes in prices, and application of overhead costs to labor hours.

Many cost concepts that are widely used today, such as escapable or avoidable overhead, sunk costs, incremental or differential costs, and their relevant time period for determining whether a cost is fixed or variable, can be found in Clark's book. (Kaplan, 1984, p.395)

Clark also recommended that in estimating cost behavior, statistical methods should be used. Clark felt that utilizing statistical methods would produce a more accurate picture of fixed costs and variable costs. Clark was concerned with the current methods of utilizing subjective estimates in determining these costs and then allocating these costs to products. Clark was advocating statistical methods to be utilized in generating a more

accurate cost picture. Clark stated that the advantage of using statistical analysis over judgmental analysis:

The statistical method has a further advantage in that it catches everything which expert judgment might overlook, and corrects automatically any possible fallacies due to semi-intuitive methods of arriving at conclusions. (Clark, 1923, pp. 223-224)

Many of the cost accounting concepts that Clark advocated then are utilized today. (Kaplan, 1984)

Clark advocated that a firm should maintain two information systems based on the same data; a financial accounting system and a cost accounting system. However, this increased the costs to firms in transactions, maintenance, and reporting of data.

The rise of large corporations caused a separation between ownership and management of the firm. This created a need for owners to monitor management's performance and the stewardship of the owner's investment in the firm. Audits provided a means for owners to monitor management's performance, as well as determine if management's reports on the financial position of the firm and its operation of the firm were correct. Since the Panic of 1873, British chartered accountants were auditing records of British interests in America. By 1900 there were several bookkeeping organizations among several cities, with a national organization, AAPA. The first CPA Act passed in 1896, emphasizing the auditor aspect of accounting. In 1903, the first auditor's report was issued for U.S. Steel. The Federal Reserve and banks were becoming concerned about the quality of information reflected on financial statements of borrowers. Even the FTC was concerned about the quality of financial information. These pressures by government regulatory bodies as well as the capital markets caused firms to think in

terms of information collected in support of audited financial statements. The growth of audited financial statements, information on financial statements generated by firms and audited by public accountants, had a long-term impact on management accounting (Johnson & Kaplan, 1987).

Auditors wanted the firm's information – cost and financial – to come from verifiable double-entry books that integrated cost and financial information. “Integration means that all amounts reported in financial statements, whether they were period expenses or end-of-period assets, had to be traceable to the original (i.e. historical) costs of recorded transactions” (Johnson & Kaplan, 1987, p.131). This also affected how firms allocated indirect costs to products. Some firms asked engineers to spend considerable amount of time tracing indirect costs to specific products, or a percentage of the indirect cost to a specific product. However, all firms could not afford this expense. And auditors wanted verifiable data; therefore, auditors preferred that indirect costs be allocated to all products through a common divisor (Johnson & Kaplan, 1987). This meant that “accounting systems used simplistic allocation methods to produce conservative information about costs and profits” (MacDonald & Richardson, 2002, p.130).

According to Johnson and Kaplan (1987), most accounting faculty at colleges and universities were gearing their accounting curriculum towards training students for public accounting and the CPA exam. As such there was greater emphasis on external reporting requirements and not internal reporting for management. Therefore, firms could not afford two information systems as proposed by Church and elected to maintain one system for financial reporting purposes (Johnson and Kaplan, 1987).

After 1925, a key aspect of cost accounting was the development of the term *departments* and its use in cost accounting. Lawrence (1925) defined department as:

A section of a factory in which are located like machines, or in which like kinds of work or operations are performed, and which incurs expense of an amount or kind which is different from that of other sections, or which has a different person responsible for its management from those responsible for the operation of other sections... (pp.24-25)

The key aspect of homogeneous departments was the allocation of overhead costs. A firm being able to define its homogeneous departments could then allocate overhead costs to the department, develop standard costs for the department, budget, monitor, control, and manage the department within the division (Vollmers, 1996). Departments were also utilized for cost accumulation in which costs were assigned to products as the products passed through the department.

A major management accounting issue in the 1950's was direct costing. In terms of the significance of direct costing, in a review of articles, books and research published from 1950 to 1959, "under the title 'direct cost' in the *Accountants Index* for these years' shows 144 publications for the decade. To put this in perspective, the number of national accounting journals in the U.S. during this decade was probably under six" (Boer, 2000, p.319). This controversy centered on the difference between variable costing and absorption costing. The major issue was the recovery of fixed costs. In variable costing, all fixed costs are allocated to the number of units sold. In absorption costing, fixed costs are allocated to the number of units that are manufactured. Thus, there will be fixed costs to the units placed in inventory. Under variable costing, net income is lower due to the

fixed costs that are expensed during the period. Under absorption costing, net income is higher because fixed costs are included in inventory, and inventory is reflected on the balance sheet. Due to the matching principle, GAAP requires the use of absorption costing in preparing financial reports. McFarland (1966) and Marple (1967) utilizing direct costing as a basis, developed the concept of contribution margin, a new approach in management accounting (Boer, 2000).

In 1952, John A. Higgins of Arthur Andersen & Company, wrote an article in the Arthur Andersen Chronicle (internal company magazine) called *Responsibility Accounting*. Higgins was expounding on the idea that firms should be organized as centers of activities in which managers are held responsible for the activities under their control. “A responsibility center is an organization unit headed by a manager who is responsible for the use of resources and the output of the unit” (Anthony, 1989, p.10). Responsibility centers were divided into cost centers (manager responsible for the costs of the unit), profit centers (manager responsible for the revenues and costs of the unit), and investment center (manager responsible for the revenues and costs of the unit as well as the investment that was utilized to generate the revenues). “The essence of responsibility accounting is the accumulation of costs and revenues according to areas of responsibility” (Liao, 1973, p.46). Responsibility accounting, normally part of the budgeting process, evaluates the results of operations and holds managers accountable for deviations from budgeted goals. The development of the responsibility center provided senior management an effective tool to motivate and direct lower levels of the organization towards the goals of the organization in a decentralized manner. Ferrara (1963) combined the responsibility center concept with the contribution approach concept

(direct costing). The Ferrara (1963) study was how managers, accountable for their responsibility center, utilizing the contribution margin approach, contributed to fixed costs plus operating income. “The contribution statement under responsibility accounting measures a contribution to costs controllable by others plus profit” (Ferrara, 1963, p.19).

In the 1950’s there were two major contributions to corporate finance which affected management accounting. One was the movement towards discounted cash flows (DCF) for capital budgeting purposes. In 1951, Joel Dean published *Capital Budgeting: Top Management Policy on Plant, Equipment, and Product Development*. This book described the net present value concept and its application to business. Dean’s book introduced modern capital budgeting techniques. Initially, Dean did not advocate discounted cash flows, just discounted net income. “By the mid-1950s, however, Dean was advocating the discounted cash flows (DCF) approach over the previously used payback and ROI methods, and this recommendation also appeared in accounting literature” (Kaplan, 1984, p.402). In 1960, Harold Bierman and Seymour Smidt published *The Capital Budgeting Decision*, which incorporated DCF analysis and techniques. The DCF capital budgeting techniques are widely used throughout the business community.

The second contribution was the development of residual income. Residual income is operating income minus the firm (or division) cost of capital, and is expressed as a dollar amount. Residual income was a management accounting concept started at General Electric (GE) after World War II. The initial author of the concept at GE is unknown. An unintended consequence of ROI is that a division manager may refuse an investment that would yield a rate of return in excess of the firm’s ROI but less than a division’s average ROI. That is, the investment would benefit the firm but may reflect negatively on the

performance of the division, and correspondingly on the division manager (Kaplan, 1984). Residual income is a means of motivating a division manager to ensure that his goals are congruent with the firm's goals.

The divisions of decentralized firms utilize transfer pricing in the interdivisional exchange of goods and services. The determination of a transfer price is a complex issue because the transfer price serves multiple uses and sometimes conflicting purposes. The two major reasons for transfer pricing are:

First, as prices, they guide local decision-making; they help the producing division decide how much of the product to supply and the purchasing division decide how much to acquire. Second, the prices and subsequent profit measurement help senior management evaluate the profit centers as separate entities. (Kaplan & Atkinson, 1998, p.454)

Alfred Sloan, as President of United Motors (1916-1920) believed in utilizing the market price as the transfer price between divisions. "My divisions in the United Motors Corporation had sold both to outside customers and to their allied divisions at the market price" (Kaplan, 1984, p.400). Donaldson Brown (treasurer at GM in 1921) emphasized the market price approach to resolve the transfer pricing issue. Brown stated that GM's transfer policy was:

The question of pricing product from one division to another is of great importance. Unless a true competitive situation is preserved, as to prices, there is no basis upon which the performance of the divisions can be measured. No division is required absolutely to purchase products from another division. In their interrelation they are encouraged to deal just as they would with outsiders. The independent purchaser

buying products from any of our divisions is assured that prices to it are exactly in line with prices charged our own car divisions. (Kaplan, 1984, p.401)

However, not all firms utilize a market price approach or transfer pricing. In the mid-1950's, Cook (1955), Dean (1955), and Stone (1956) described a variety of practices on transfer pricing (full cost, standard cost, market price, and negotiated price). Hirshleifer (1956), "developed the microeconomic foundations of the transfer pricing problem and demonstrated, in a limited setting, the optimality of using the opportunity cost of the selling division as the appropriate transfer price" (Kaplan, 1984, p.403). Hirshleifer (1956) described the transfer pricing issue as a maximum problem with full information, where the optimal solution is when marginal cost of the selling division equals the marginal profit of the buying division. Hirshleifer (1956) took the economic viewpoint and felt that if the transfer price was at the selling division's marginal cost, this would be the selling division's marginal revenue, which would generate maximum profit. While Hirshleifer's idea found appeal, there was no standard practice utilized among industries. Grabski (1985) reviewed 81 papers written between 1974 to 1983 and found no standard method utilized for transfer pricing.

In the 1970's, agency theory emerged as a management accounting issue. The basis for agency theory is that there is a contract between principal and agent (Anthony, 1989). Agency theory reflects:

In this model, accounting information is viewed as the basis of contracting between economic agents who have different ownership rights, different information, perhaps different prior beliefs, and different preferences for outcomes. ... The information, or management accounting system serves to inform the principal (owner, shareholder,

central manager) and agent (management, division, or department head) about actual outcome, to supply signals to the agent and, in some cases, to inform the principal about the likelihood of various state occurrences. (Kaplan, 1984, p.404)

“The model assumes a separation of ownership and control, information asymmetry arising from separation, the availability of incentives and rewards, and, most significantly, narrowly self-interested behavior on the part of the contracting parties” (Cohn & Holder-Webb, 2006, p.23).

One of the first major pieces of research on agency theory is Berle and Means (1932) book, *The Modern Corporation and Private Property*. Berle and Means (1932) thesis was that in the modern corporation there was a separation of the owner function from the management control function, and as such, professional managers could take action detrimental to the owners. Berle and Means (1932) recommended that there be some type of communication between the owners of the firm and management of the firm so as to protect the interests of the owners and for owners to evaluate managerial performance. One method of communication is the auditor’s report, performed by an independent third party, and provides a written opinion on the information presented by management. Berle and Means (1932) book was written in the depths of the Great Depression and was widely read. “The Berle and Means thesis became the foundation for the passage of the Securities Acts of 1933 and 1934, which established legal responsibilities in connection with the agency relationship between shareholders and managers” (Bricker & Chandar, 1998, p.488).

The Jensen and Meckling (1976) seminal work on agency theory is that the managers' interests are different from those of shareholders. The Jensen and Meckling (1976) article

laid the foundation in the widespread use of stock options as a compensation tool for executives of the firm. Agency theory assumes that agents need to be compensated financially in order take actions that will benefit the firm (Kaplan, 1984).

A key aspect of agency theory is the management accounting system. This is the source of measures and indicators used to measure management (agent) performance. In addition, it is a central feature of an overall management control system and provides essential information on the overall control of the firm (McLean, 1988).

Kaplan (1984) believes that there are some omissions from the agency theory model. The economy is moving towards an information society and innovation and knowledge are not included in the agency theory model. There are also increased managerial activities in the areas of marketing, training, improved quality, and product and process improvements. However, it could be argued that management performed these tasks to ensure that it accomplished its goals and increased shareholder value.

There are three major types of agency costs, which are: 1) costs to monitor managerial activities, such as the cost of auditors; 2) costs associated with structuring the firm that will limit undesirable managerial behavior, such as the structure of the Board of Directors; and 3) opportunity costs which are incurred due to shareholder-imposed restrictions (Shankman, 1999). While these costs decrease shareholder wealth, they are necessary for owners to evaluate and monitor management performance.

In 2002, in response to a number of fraud cases and accounting scandals (Enron, WorldCom, Heath South, etc.), the United States Congress passed the Sarbanes-Oxley Act of 2002 (SOX), which imposes a number of new regulations and obligations on publicly traded firms. SOX reaffirmed the traditional hierarchy principal/agent

relationship that occurs within corporations. Such relationships are that the shareholders (who are principles of public firms) have Board of Directors as their agents. One of the board of directors has to be a financial expert and there should be a greater number of outside directors as opposed to inside directors. The Board of Directors are principals and the executives of the firm are agents. The Board of Directors incurs an agency cost in hiring outside auditors to assist the Board in monitoring the performance of management, through the audit of the firm's financial statements. The principal/agent relationship continues throughout the firm.

Kaplan (1984) and Johnson and Kaplan (1987) believe that all management accounting concepts were developed by 1925 and there was very little change in management accounting until the 1980's. However, as noted above, there were a number of innovative management accounting concepts that were developed during the 'second wave' in the history of management accounting. These concepts include direct costing, responsibility accounting, new capital budgeting techniques (DCF), residual income, transfer pricing, and agency theory.

The Third Period of Management Accounting

The traditional cost model developed by 1925, consisted of direct materials, direct labor, and overhead based on a single or a few products (Kaplan, 2006). Kaplan (1984) stated that manufacturing had changed from mass production of a small number of standardized items that utilize a high labor content to customized products that utilize less labor content and more automation. Kaplan (1984) suggested that this entailed changing the traditional cost accounting model to reflect the realities of the new manufacturing

environment. These changes include “Just-in-time scheduling, zero defects and zero inventory production systems, and cooperative and flexible work-force management policies” (Kaplan, 1984, p.407). In addition, firms were investing in “computer-controlled machinery, including Flexible Manufacturing Systems, CAD/CAM, and robots for their production process” (Kaplan, 1984, p.407). Kaplan (1984) also stated that management accounting needed to broaden its scope into non-financial areas in order to provide information concerning the monitoring and evaluation of management’s ability to meet an organization’s goals and objectives.

Activity Based Costing

In a traditional labor intensive manufacturing firm, direct labor constitutes 40-60% of manufacturing costs, direct materials range from 30 to 40% of manufacturing costs, and indirect (overhead) costs can be 8-12% of manufacturing costs. Since direct labor constitutes the greater share of manufacturing costs, it was used as the allocation base for allocating overhead costs.

This environment was stereotypical of mass production of a small number of standardized items. However, during the past 30 years, manufacturing these types of items has been outsourced to other countries whose labor costs are lower. The outsourced costs now represent subcontracted costs and became a direct cost item. In turn this reduces the amount of direct labor and the allocation base used in the remaining portion of manufacturing process. Due to innovation, technology, and productivity improvements, manufacturing industries have become more capital intensive and less labor intensive. The cost structure changed in which overhead is 50% or more of

manufacturing cost. If reduced labor content is the allocation base, changes in direct labor can have a huge impact on overhead rates. In addition, an improper assignment of indirect costs can have a huge impact on product costs (Latshaw and Cortese-Danile, 2002). Also, the manufacturing environment changed to producing multi-products, greater complexity, and increased customer tastes, which make it difficult to apply overhead costs on a uniform basis.

Kaplan and Cooper (1987) suggested that firms should focus their attention on indirect cost activities in producing products and measure the costs of these activities. The activities and its associated cost can be reviewed and evaluated and inefficiencies and waste can be eliminated or reduced. “Activity-based costing (ABC) developed to provide more-accurate ways of assigning the costs of indirect and support resources to activities, business processes, products, services, and customers” (Kaplan & Atkinson, 1998). The ABC model is able to determine which fixed costs should be allocated to specific resources “demanded by individual orders, products, services, customers, and channels” (Kaplan, 2006, p.130). There are two major assumptions concerning ABC. One is that the cost drivers in each pool are homogeneous. Second, the costs in each pool are proportional to the activity (Latshaw & Cortese-Danile, 2002). “The goal of an activity-based cost information system is to accurately identify and measure the relationship between resources and activities and then between cost objects and activities” (Sapp, Crawford, & Rebeschke, 1990, p.58).

The primary uses for ABC are:

- 1) As a tool to aid strategic decision-making;

- 2) As a lens into the business process, allowing resources to be more efficiently allocated and to enable cost reduction; and
- 3) As an allocation mechanism: transfer pricing internal and external to the organization. (Rafiq & Garg, 2002, p.14)

Ostrenga (1990), working for the consulting business of a large accounting firm describes his experiences working with large (all Fortune 500 firms) and small firms from discrete to processing manufacturing in analyzing client's operations for implementing ABC systems. Ostrenga (1990) analysis of a client's operations enviably shifted focus to the "effect activities and activity-consuming resources have on the economics of the business" (Ostrenga, 1990, p.42). Ostrenga (1990) fieldwork showed that "activity based product costing is sensitive to the ratio of overhead cost to total costs and the level at which product focused processes enabled direct charging" (p.44). Ostrenga (1990), correlated responsibility accounting to ABC by "relating the cost to the drivers establishes the driver as the measure of planned activity" (p.46). Then reducing cost is achieved by reducing resource consuming activities through its cost drivers.

Kaplan and Cooper (1987) in their article discussed the development and usage of ABC on manufacturing firms. However, ABC has been implemented in service firms.

The banking industry has undergone significant change and by 1990 personnel expenses represented the largest component of non-interest expense (Weiner, 1995). Sapp, Crawford, and Rebischke (1990 and 1991) described the first foray of ABC by large financial institutions. Due to the diverse products offered by large financial institutions, there is an opportunity for cross-product subsidies and opportunities for ABC to be implemented. Most financial institutions' costs are indirect costs (personnel salaries

and benefits, facilities, utilities, equipment, printing, office supplies) and as such they must be allocated to various products and services (Sapp, Crawford, and Rebischke, 1990).

The intensity and need for reliable cost information has increased due to:

- Deregulation of financial institutions
- Increase in the cost of interest-bearing sources of funds
- Expansion of non-fund services
- Unbundling of products and services
- Automation of many transactions.

(Sapp, Crawford, & Rebischke, 1990)

Sapp, Crawford, and Rebischke (1990) noted that most banks' current cost systems do not adequately address the dynamics of the cost structure of products and services. There are two major reasons for this situation. One, financial institutions' information systems are designed to produce financial statements which are the source of product cost information. Second, the same information systems are designed as a responsibility system for performance evaluation purposes. While the information systems are able to provide information as to management's performance (variance between actual results and a standard), the information systems does not provide information as to the cost drivers that have an impact on the cost of products and services. As such, "the cost systems that are currently in place generate information that is too aggregated, focused on accounting needs rather than managerial information needs, and is reported far too late to be effectively used" (Sapp, Crawford, & Rebischke, 1990, p.5).

Sapp, Crawford, and Rebischke (1991) stated that traditional cost systems do not take into consideration long-term customer relationships. That is, the establishment of a new customer relationship today can have long-term cost implications and is critical in terms of evaluating product and customer profitability. The range of products and services that are provided in maintaining customer relationship includes; loans, demand deposit accounts, leases, discount brokerage services, real estate development, financing, safe deposit boxes, and trust services.

Sapp, Crawford, and Rebischke (1991) developed an ABC framework for large financial institutions, centering on four activities, for products, services, and customer relationships. These four activities are: 1) set-up activities (a one time activity that is generated when creating a new relationship between the financial institution and the customer), 2) sustaining activities (activities that the financial institution engages to maintain a customer relationship), 3) transaction activities (customer initiated events which occur when the customer interacts and engages the financial institution), and 4) termination activities (a one time activity that occurs when ending a customer relationship).

Since Sapp, Crawford, and Rebischke (1990) initial research, many financial institutions have embraced and implemented ABC systems and processes. Max (2008) describes how ABC has become common for financial institutions, as many firms replace, revise or extend their ABC systems. Many financial institutions, through their ABC systems and information, are leveraging technology and different approaches in bringing sustained value to their customers (Max, 2008).

While there have been a number of articles written on ABC, and there has been significant implementation of ABC, there have been a number of failures in implementing ABC. “ABC has yet to become standard industry practice, let alone the norm for the financial services sector” (Rafiq & Garg, 2002, p.13). This is true among a number of industries. There have been a number of issues in implementing ABC.

Kaplan and Anderson (2004) stated that a significant amount of resources are expended in gathering data to measure activities. This data gathering consists of interviews, time logs, and direct observation of people performing an activity. In addition, time and resources spent in updating a firm’s ABC model, reflecting changes in a firm’s operations, through a new round of interviews and surveys (Kaplan & Anderson, 2004).

Kaplan and Anderson (2004) example of such resources spent involve a money center of a bank’s brokerage operations. The ABC model required monthly surveys be submitted by 70,000 employees at over 100 facilities. Managing the data collection, processing, and reporting of the monthly surveys required 14 full-time people. “The high time and cost to estimate an ABC model and to maintain it – through re-interviews and re-surveys – has been a major barrier to widespread ABC adoption” (Kaplan & Anderson, 2004, p.3).

A second issue has been the quality of data. The data normally are an individual’s subjective estimates of the time spent on a particular activity. It is difficult to quantify the measurement error introduced by individual estimate. Even if individuals are diligent measuring their time, there still is a natural error in the process. This has a direct impact on the accuracy of the cost driver rates (Kaplan & Anderson, 2004).

The third issue is the scalability of an ABC model. Adding new activities to the model increases its complexity as well as the number of resources needed to implement and maintain the new data elements to support the new equity (Kaplan & Anderson, 2004).

The fourth issue is that as the data dictionary increases to reflect greater granularity and detail about activities performed, information technology (IT) demands increases. Greater IT resources are needed to store and maintain the data. In addition, the expansion can also tax the capacity of spreadsheet tools and/or ABC software packages (Kaplan & Anderson, 2004).

The fifth issue is the decisions by large organizations to either have a ‘standardized’ ABC model across the entire organization or a customized ABC model for each segment, business unit, or local operation. A ‘standardized’ ABC model does not take into consideration the different idiosyncrasies of each local operation. If the ABC model is customized it takes away from management in having the desired apple-to-apple comparison (Kaplan & Anderson, 2004).

The sixth issue concerns the movement of material between facilities for processing. “Trying to coordinate cost estimates for products traversing multiple ABC models, or for a product assembled from a component built in separate factories, each with its own ABC model, becomes an essentially impossible task” (Kaplan & Anderson, 2004, p.4).

The seventh issue is that the individuals estimating their time on activities rarely indicate any idle or unused time. This indicates that the cost drivers that are developed are based on resource usage at full capacity (1005). However, most operations are conducted at less than full capacity (Kaplan & Anderson, 2004).

The eighth issue is that ABC implementation may affect employee behavior, as current decision models need to be altered or discarded. It is difficult for employees to change their way of thinking after years of being conditioned to operate in one particular way (Kaplan & Anderson, 2004).

In summary, the process of calculating activity expenses through interviews, observation and surveys has proven to be time-consuming and costly to collect the data, expensive to store, process and report, difficult to update in light of changing circumstances, and theoretically incorrect, by suppressing the role for unused capacity when calculating cost driver rates. (Kaplan & Anderson, 2004, p.5)

Kaplan and Anderson (2004) in acknowledging the frustration of businesses in implementing ABC and the number of failures in implementing ABC, refined the ABC model. The refinement is time-driven ABC. The genesis of time-driven ABC is to collect and utilize less data. The time-driven ABC requires two estimates: “1) The unit cost of supplying capacity, and 2) The consumption of capacity (unit times) by the activities the organization performs for products, services, and customers” (Kaplan & Anderson, 2004, p.6).

“The key elements for time-driven ABC are, first, estimating the practical capacity of committed resources and their cost, and second, estimating unit times for performing transactional activities” (Kaplan & Anderson, 2004, p.11).

Kaplan and Anderson (2004) time-driven ABC model is meant to utilize existing transactional computer systems, which would be easier to start and maintain, utilize less cost and time, and can be validated by direct observation of the ABC model’s estimate of unit times.

The original ABC model utilizes a “pull” system in which the firm starts with total indirect expenses, then studies and determines the various activities that are required to generate the expenses and develop a cost for each activity. A time-driven ABC model is a “pull” system in which the firm estimates the two parameters. The firm estimates the time required to perform the activity.

So, “push ABC” computes actual activity costs and aggregates them into the outputs, such as products, that consume those activities. “Pull ABC” computes activity costs at standards rates and leaves a “leftover efficiency” and/or used capacity cost variance.

(Adkins, 2008, p.35)

Kaplan and Anderson (2004) believe that it is easier for management to update changes in a time-driven ABC model than a traditional ABC model. Kaplan and Anderson (2004) stated that the time-driven ABC model can be updated when an event occurs vice at specific times (monthly, quarterly, or annually). Adkins (2004) believes that if there are a number of events the model would be updated on a continuous basis which is time consuming.

The Institute of Management Accountants (IMA) formed the Business Research and Analysis Group (BRAG) to study the use of ABC methods. The study was sponsored by the IMA, the Association of Chartered Certified Accountants (ACCA), American Institute of Certified Public Accountants (AICPA), Chartered Institute of Management Accountants (CIMA), Society of Management Accountants of Canada (CMA-Canada), CAM-I, Financial Executives International (FEI), and Oracle Corporation. The results of the study were published in the Spring 2009 issue of the *Management Accounting*

Quarterly, in an article, titled, *Activity-Based Costing: Is it still relevant?* (Stratton, Desroches, Lawson, & Hatch, 2009).

The study was conducted world-wide and had 348 respondents with a distribution of 52.1% from North America, 13.9% from Europe, 12.8% from Middle East, 12.1% from Asia, 6.8% from Africa, and 2.4% from South America. Service firms represent 53.7% of the respondents, manufacturing firms represent 39.5% of the respondents, not-for-profit firms and government entities represent 6.0% of the respondents, and miscellaneous firms represent 0.8% of the respondents.

The results of the survey reveal that users of an ABC model view their cost system positively and non-users of an ABC model view their cost system less positively. In response to questions concerning a user's system ability to accurately trace costs and overhead costs to final cost objectives as well as the accuracy of the information, ABC users agreed with the statements between 58% to over 70% of the time. Non-ABC users agreed with the statements from 22% to 38% and disagreed with the statements from 48% to 60%. Managers of non-ABC users believe their cost system does not provide accurate overhead allocation and cost information. The survey revealed that ABC users believe that their system provides a cause-effect relationship between cost allocation and the resources consumed, as well as timeliness of cost/profit information. The survey revealed that ABC users believe their systems provide greater decision support than non-ABC users. In addition, ABC users believe that their system is better integrated with budgeting and planning processes. The survey also revealed that only 2.8% of the respondents had an ABC model but no longer use an ABC model, and that 15.6% of the

respondents considered utilizing an ABC model but chose not to implement it (Stratton, Desroches, Lawson, & Hatch, 2009).

Balanced Scorecard

In 1990, the Nolan Norton Institute (research arm of KPMG) sponsored a one year multi-company study titled, *Measuring Performance in the Organization of the Future*. The concern was that existing financial measures did not allow a firm's senior management to effectively lead the firm and create economic value as economic conditions were changing from the industrial age to the service sector to the information age. The study was led by Dr. David Norton (CEO of Nolan Norton Institute) and its academic consultant was Dr. Robert Kaplan (Marvin Bower Professor of Leadership Development at the Harvard Business School) (Kaplan & Norton, 1992; Kaplan & Atkinson, 1998).

Kaplan and Norton met with representatives at over a dozen companies in multi-industries in developing a performance measurement model (Kaplan & Norton, 1992). One of the individuals that Kaplan and Norton interviewed was Arthur M. Schneiderman, vice-president of quality improvement and productivity at Analog Devices, Inc. (ADI). Schneiderman, between 1986-1990, had developed several non-financial measures as a 'Corporate Scoreboard' (Schneiderman, 2006). Kaplan and Norton utilizing ADI as a case study, in addition to its discussions and research with other firms, developed the Balanced Scorecard.

The balanced scorecard "measures customer objectives and the value proposition being offered to attract, retain and deepen relationships with targeted customers"

(Kaplan, 2006, p.132). The balanced scorecard “was developed to communicate the multiple, linked objectives that companies must achieve to compete on the basis of capabilities and innovation, not just tangible physical assets” (Kaplan & Atkinson, 1998, p.368). The basis for the balanced scorecard understood that the role of intangible assets – “customer relationships, people, systems, culture, innovation, quality, and regulatory and social performance” – allowed a firm to differentiate itself and have a competitive advantage (Kaplan, 2006, p.133).

The balanced scorecard gives information to management on four perspectives: 1) financial perspective, 2) customer perspective, 3) innovation and learning perspective, and 4) internal business perspective (Kaplan & Norton, 1992). Each perspective lists a goal and a measure for the goal.

The four perspectives of the scorecard permit a balance (1) between short- and long-term objectives, (2) between external measures – for shareholders and customers – and internal measures of critical business processes, innovation, and learning and growth, (3) between outcomes desired and the performance drivers of those outcomes, and (4) between hard objective measures and softer, more-subjective measures. (Kaplan & Atkinson, 1998, p.375)

The balanced scorecard concept caught fire in the business community and was implemented by a number of firms to improve their performance and create economic value. A number of firms implemented the balanced scorecard concept, trying to link intangible assets to performance measures. However, a number of issues arose.

According to Lawrie and Cobbold (2004), there were several issues with Kaplan and Norton’s original balanced scorecard model. One was that Kaplan and Norton did not

define 'balanced scorecard'. Kaplan and Norton described the attributes of a balanced scorecard, but not a specific definition of a balanced scorecard. Second, Kaplan and Norton did not provide clear guidance on methods to be used to select measures that should be included in the perspective portion of the balanced scorecard. This includes filtering (firms have more measures than what are needed to populate the balanced scorecard. Hence, some need to 'filter' or determine which measures to be used) and clustering (which measures should appear in which perspectives). The major concern was filtering as firms had more measures than necessary to populate the scorecard. Also, poor measure selection also has an adverse effect on the balanced scorecard. Third, there was no causality between the perspectives. That is, the model did not adequately explain how the perspectives were linked to each other. In 1993, Kaplan and Norton revised their model in response to the some of the issues raised concerning their initial model. The revision was replacing 'goal' with 'strategic objectives' for each of the four perspectives. "The innovation was to suggest that there should be a direct mapping between each of the several 'strategic objectives' attached to each perspective and one or more performance measures" (Lawrie & Cobbald, 2004, p.3). The initial 1992 model coupled with the 1993 changes became known as the 1st generation balanced scorecard.

While the 1st generation balanced scorecard model was an improvement over the initial model and resolved the filtering issue, clustering was still an issue. The issue was determining which measures should be associated with which strategic objectives. Various forms of analysis to validate measure selection based on some degree of correlation were occurring. By the mid-1990's,

The idea of strategic linkage became an increasingly important element of Balanced Scorecard design methodology ... Balanced Scorecard documentation began to show graphically linkages between the strategic objectives themselves (rather than the measures) with causality linking across the perspectives toward key objectives relating to financial performance. (Lawrie & Cobbold, 2004, p.3)

In 1996, Kaplan and Norton describe the linkage between measures (Kaplan & Norton, 1996a) and linkages between strategic objectives (Kaplan & Norton, 1996b). Kaplan and Norton describe the balanced scorecard as evolving from “an improved measurement system to a core management system” (Lawrie & Cobbold, 2004, p.3). This enhanced balanced scorecard became known as the 2nd generation balanced scorecard. It had two major enhancements: 1) measures were chosen to relate to specific strategic objectives, and 2) a means to document the causal relationship between strategic objectives, either as ‘strategic linkage’ or ‘strategy map’ diagram (Lawrie & Cobbold, 2004).

Kaplan and Norton’s balanced scorecard model assumes that a firm’s strategy be developed by a small number of senior management personnel supported by consultants. Also, the model assumes that the strategy is shared throughout the organization, even though there are no specific activities or design components to ensure that this is the case. There is a concern that a lack of shared approach may weaken the value of the strategy (Lawrie & Cobbold, 2004). Also, the public sector had some problems utilizing the balanced scorecard concept, meshing the current four perspectives with a public sector organization.

By 2000, these concerns resulted in a 3rd generation balanced scorecard model. While there is no specific author for the development of the 3rd generation balanced scorecard, it was not developed by Kaplan and Norton. The 3rd generation balanced scorecard has several features different from the 2nd generation balanced scorecard.

One is the introduction of a Destination Statement. “Destination Statements were initially created towards the design process by challenging the managers involved to imagine the impact on the organisation of the achievement of the strategic objectives chosen earlier in the design process” (Lawrie & Cobbold, 2004, p.5). The Destination Statement describes “what the organisation (or part of organisation managed by the Balanced Scorecard users) is likely to look like at an agreed future date” (Lawrie & Cobbold, 2004, p.7). The Destination Statement was derived before the creation of the balanced scorecard, in order to more accurately select measures and desired outcomes for the measures. The Destination Statement “ensures that a shared view of the strategic plan and its intended consequences is agreed prior to making decisions about organizational activity and setting targets for those activities” (Lawrie & Cobbold, 2004, p.7). Also, the Destination Statement facilitates the ability of an organization to have multiple balanced scorecards. Second, the 3rd generation allows changing the term ‘perspective’ to ‘category’, and the number of categories utilized in the strategic linkage model. This allows the balanced scorecard model to become user friendly to the public sector. The concept of utilizing non-financial performance measures as part of a core management system appealed to the public sector. However, the public sector has different perspectives than a profit firm and a different number of categories. That is, a public

sector organization has different goals, objectives, and strategies in meeting its public sector mission.

In 2006, Tomura (2006) described a 4th generation version of the Balanced Scorecard in conjunction with Sarbanes-Oxley (SOX) requirements. Tomura (2006) concern is that the “usual Balanced Scorecard lacks emphasis on internal controls” (Tomura, 2006, p.1). Tomura (2006) believes that the balanced scorecard can accelerate the Plan-Do-Check-Act (PDCA) cycle. (PDCA is a four step model in a continuous circle conducting change. Also, known as the Deming wheel). According to Tomura (2006), “Balanced Scorecards can improve the quality of strategy implementation, the operation of a business, strategic communication, and so forth by the PDCA cycle mainly related to earning profits” (p.2). The key areas that Tomura (2006), proposes to utilize the balanced scorecard, in terms of SOX, is in “information and communication” and “monitoring”. In terms of “information and communication”, the appropriate information must be communicated and shared among the appropriate personnel (board of directors, senior management, middle and lower management, and the workforce). In terms of “monitoring”, the corresponding business activities need to be reviewed and monitored by the right individuals in real time. “The firms should communicate the important information as shared knowledge, and monitor any signs of risk in real time to prevent failure of external audits and the SOX clearance” (Tomura, 2006, p.3).

Tomura (2006) proposes utilizing information technology balanced scorecard software and data warehouse software for a firm’s senior management to provide information to the workforce and to monitor the workforce activities in terms of

achieving SOX requirements. The purpose would be to allow the firm's CEO to monitor, in real time, the implementation of strategy and task progress.

Tomura (2006) proposes a risk control matrix (RCM) be developed with key risk indicators (KRI) as laggard indicators for each risk identified, and key control indicators (KCI) as forward indicators for each control activity. "In the RCM, each process owner must show processes, subprocesses, risks, assertions, risk exposures, risk frequencies, control activities, control attributions, and control frequencies" (Tomura, 2006, p.4). Risks are quantified as KRI's and control activities are quantified as KCI's. The control activities that are implemented to reduce risks are reflected in the KCI's. The risks that are controlled are reflected in the KRI's. Through the 4th generation of the balanced scorecard, firms can monitor signals of risk management situations and provide corrective action prior to external auditors determining the material weaknesses based on SOX requirements.

Tomura (2006, p.5) lists the advantages of the 4th generation balanced scorecard for SOX as:

- Allowing a sense of process ownership to take root among employees, managers, officers, etc.
- Clarification of the responsibility of the KRIs and KCIs owners.
- Grasping of the significance of a sign of potential risk (deleterious changes) prior to real damages.
- As a helpful tool to establish internal audit programs.
- Improvements in transparency and accountability.

- Visible changes in the indicators place strong pressure on process owners to achieve goals.
- From “Clearing SOX Requirements” to “Beyond SOX”.
- Ensuring the traceability of internal control processes and actions toward *Kaizen* for the next period.

Tomura (2006) believes that a 4th generation balanced scorecard can be based on compliance programs, business succession plans, and Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework. Tomura (2006) also believes that a 4th generation balanced scorecard will improve corporate governance, a firm’s internal auditors and managers will share information, and appropriate action will be taken to ensure compliance with SOX requirements.

Kaplan and Norton (2005) described the continuation of firms utilizing the balanced scorecard by aligning their management processes to the firm’s strategy. Kaplan and Norton (2005) describe an Office of Strategic Management (OSM), which is responsible for managing a firm’s strategy in coordination with the firm’s balanced scorecard. Kaplan and Norton (2005) believe that “strategy is either omitted from key management processes, or management processes are uncoordinated across functions and business units” (Kaplan & Norton, 2005, p.8). Kaplan and Norton (2005) describe OSM responsibilities as; 1) scorecard management, 2) organizational alignment, 3) strategy communication, 4) strategy review, 5) initiative management, 6) strategy development and update, 7) planning and budgeting, 8) employee alignment, and 9) knowledge management. Kaplan and Norton (2005) believe that for a firm to ultimately benefit from a balanced scorecard the firm needs to make strategy a core competency.

Economic Value-Added and Market Value-Added

Traditionally firms utilize gross income (from operations) and net income as two performance measures in determining a firm's cash flow and how well a firm is performing. However, there is a cost of capital that a firm incurs when conducting business. Economic Value Added (EVA), a variant of residual income, recognizes that capital has a cost and that earning above the cost of capital creates value for the firm and its shareholders. In 1991, G. Bennett Stewart, III (founder with Joel Stern of Stern Stewart and Company) developed the concept of EVA as "after-tax-net operating profit – NOPAT – minus a capital charge" (Dierks & Patel, 1997, p.52). EVA is an economic profit in that it takes an accounting profit – NOPAT – and subtracts a cost of capital (Dierks & Patel, 1997, p.52). Stewart (1991) states:

Earnings, earnings per share, and earnings growth are misleading measures of corporate performance and the best practical periodic performance measure is economic value added. EVA is the financial performance measure that comes closer than any other to capturing the true economic profit of an enterprise. EVA also is the performance measure most directly linked to the creation of shareholder wealth over time. (p.66)

Dierks and Patel (1997) state that EVA "measures the amount of value a firm creates during a defined period through operating decisions it makes to increase margins, improve working capital management, efficiently use its production facilities, and redeploy underutilized assets" (p.55).

The major differences between EVA and accounting profit are: 1) EVA subtracts the cost of capital utilized to generate the profit, 2) the capital rate utilized in determining the

cost of capital should be a rate that compensates investors for business risk for providing equity and debt to the firm, and 3) EVA adjusts accounting profit to closely resemble economic performance (Stewart (1994)

The key components of EVA are NOPAT and a capital charge (which consists of the cost of capital times a capital amount). Dierks and Patel (1997) define NOPAT as “profits derived from a company’s operations after taxes but before financing costs and noncash – bookkeeping entries” (p.52). NOPAT is operating profit, earnings before interest and taxes, minus taxes. It is the amount of cash available to those individuals and entities that provided capital to the firm. The capital charge consists of capital multiplied by a cost of capital. Capital is the amount invested in the firm (debt and equity), net of depreciation (Stewart, 1991). “The cost of capital is the minimum rate of return on capital required to compensate debt and equity investors for bearing risk” (Dierks & Patel, 1997, p.52).

Corporations can improve EVA in three ways: “by increasing earnings while using the same amount of capital; by reducing the amount of assets employed while generating the same earnings; or by decreasing the cost of capital” (Pallium, 2006, p.206).

The main difference between EVA and residual income is that Stewart (1991) recommends making equity equivalents to a firm’s accounting book value to determine economic book value, in order to arrive at an EVA value. Young (1999) describes the equity equivalent process:

These adjustments aim to 1) produce an EVA figure that is closer to cash flows, and therefore less subject to distortions of accrual accounting; 2) remove the arbitrary distinction between investments in tangible assets, which are capitalized, and intangible assets, which tend to be written off as incurred; 3) prevent the

amortization, or write-off, of goodwill; 4) eliminate the use of successful efforts accounting; 5) bring off-balance sheet debt into the balance sheets; and 6) correct biases caused by accounting depreciation. (p.8)

Stewart (1991) identified 164 equity equivalent reserve adjustments. Stern, Stewart, and Chew (1994) recommended equity equivalent adjustments occur if they pass four tests, which are:

- Is it likely to have a material impact on EVA?
- Can the managers influence the outcome?
- Can the operating people readily grasp it?
- Is the required information relatively easy to track or derive? (p.41)

Examples of equity equivalent adjustments include capitalizing research and development expenses; setting up a last-in-first-out (LIFO) reserve account (the difference between the LIFO and first-in-first-out (FIFO) values of inventory), and adding the LIFO reserve account to capital and adjusting NOPAT for the changes in the LIFO reserve account; and adjusting NOPAT for the changes in the deferred tax reserve account (Dierks & Patel, 1997).

Stewart (1991) stated that there are two ways to calculate EVA; the operating approach and the financing approach.

The financing approach, starting with a firm's return on equity, develops a rate of return on capital in three steps: "eliminating financial leverage, eliminating financing distortions, and eliminating accounting distortions" (Dierks and Patel, 1997, p.54). These steps indicate that NOPAT represents "a sum of the returns attributable to all providers of

funds to the company, and NOPAT return is completely unaffected by the financial composition of capital” (Dierks & Patel, 1997, p.54).

The operating approach starts with deducting the cost of goods sold from net sales to arrive at gross profit (income). Deductions from operating profit (income) are equity equivalent adjustments to arrive at net operating profit before taxes (NOPBT). Then an estimate of the taxes payable on NOPBT is determined and subtracted from NOPBT to arrive at NOPAT. Neither Stewart (1991) nor Dierks and Patel (1997) determined which method, financing approach or operating approach, is more prevalent among firms.

“EVA measures the amount of value a firm creates during a defined period through operating decisions it makes to increase margins, improve working capital management, efficiently use its production facilities, and redeploy underutilized assets” (Dierks & Patel, 1997, p.55).

A benefit of the EVA approach is that it aligns a firm’s management with the interests of the shareholders and can be used to incentivize or motivate management (Dierks & Patel, 1997). Another benefit of EVA is that it forces a firm’s management to focus on operating profits and the capital decisions that are needed to increase operating profits. Firms can improve EVA in three ways: “by increasing earnings while using the same amount of capital; by reducing the amount of assets employed while generating the same earnings; or by decreasing the cost of capital” (Pallium, 2006, p.206). EVA can be improved by increasing earnings through cost cutting, increasing inventory turns to reduce cash flow tied up in raw materials, streamlining operations to reduce the amount of capital needed to operate a firm, and investing in high-return projects (Dierks & Patel, 1997).

There are several criticisms of EVA. One is that EVA does not reflect growth opportunities inherent in investment decisions (Dierks & Patel, 1997). The market price of a firm reflects the market's perception of growth opportunities for the firm. EVA does not present such information. It reflects what occurred in the past – not growth opportunities for the future. This leads to focusing on year-to-year changes for firms that are in mature industries which do not have significant changes in asset acquisitions. In addition, if a firm makes significant asset acquisitions in one year and expects to earn a return on those assets in future years, the first year will reflect a negative EVA, which may have an effect on managerial decision making.

EVA is difficult to use for technology firms that have few physical assets but have a higher portion of intellectual capital. The formula for EVA utilizes a capital charge for physical assets but not for intellectual capital (intellectual assets). Yet there is a cost in utilizing intellectual capital (Dierks & Patel, 1997).

A third criticism is the measurement of the cost of capital. Dierks and Patel (1997) utilize cost of capital as the rate of return on capital needed to compensate debt and equity investors. However, Paulo (2002) is critical of how Stewart (1991) calculates the cost of capital because it makes use of the Capital Asset Pricing Model (CAPM), which Paulo (2002) believes is a less than satisfactory approach to valuation. Pallium (2006) recommends the use of *beta* for determining the cost of capital. Pallium (2006) defines *beta* as the covariance of the firm's stock return with the market divided by the variance of the returns of the market. Pallium (2006) recommends Standard and Poor's (S&P) 500 index as representative of market returns. Worthington and West (2001) recommend that a firm use its weighted average cost of capital (WACC) as the cost of capital in

determining EVA. Thus, there is no single agreement as to determining the cost of capital. For comparison purposes, consistency is the key to utilizing the same methods in determining the cost of capital and EVA.

Brewer, Chandra, and Hock (1999) list four limitations of EVA; size differences, financial orientation, short-term orientation, and results orientation.

A fourth criticism of EVA is size differences between plants, divisions, and firms. If a firm has one cost of capital rate firm-wide, a plant or division that has a larger asset acquisition base would have a greater EVA value than a plant or division that has a smaller asset acquisition base. This size differential makes it difficult to compare which plant or division did a better job of generating earnings from its asset acquisitions.

A fifth criticism of EVA is the manipulation of financial data, which can distort the EVA value. Revenue and expense recognition, and asset acquisition could be delayed and/or manipulated. EVA values would be distorted by management to incorrectly reflect positive performance.

A sixth criticism of EVA is the emphasis on short-term results. EVA can be part of a management performance system. If a manager invests in a new asset acquisition in one year and expects future benefits in the out years, in the first year the EVA value would decrease and improve in the out years. In the first year the EVA value would have a negative impact on a manager's performance and thus might induce the manager not to procure the asset. The asset acquisition and/or other improvements would benefit the firm in the long-term, yet managers may not make the asset acquisition (improvements) due to the ramifications to their performance evaluation. "EVA is another form of managerial

remote control that forces managers to put undue emphasis on the short-term bottom line” (Brewer, Chandra, & Hock, 1999, p.7).

Brewer, Chandra, and Hock (1999), list results orientation as a limitation of EVA. The reason is that a negative EVA value or an EVA value that reflects poor performance does not point towards the root cause of the operational inefficiencies that caused the poor performance. However, this can be said for most financial indicators. EVA is not an operational indicator; it is a financial indicator. As such, financial indicators may reflect that there is a problem within an organization, but not necessarily the operational cause of the problem. Operational indicators provide information on the operation and can be investigated to determine what improvements need to be made to improve operations. Therefore, the author does not believe that results orientation should be listed as a criticism of EVA.

The mantra for senior management of a firm is to maximize shareholder wealth. Shareholder wealth is maximized by increasing the difference between the market value of a firm and the capital provided by investors. This difference is market value added (MVA) (Dierks & Patel, 1997; Lehn & Makhija, 1996; Stewart, 1994; Worthington & West, 2001). MVA is “a measure of the wealth a company has created for its investors” (Dierks & Patel, 1997). MVA is a cumulative measure while EVA is for a specific period of time (Dierks & Patel, 1997; Worthington & West, 2001).

EVA is correlated to MVA. If a firm’s EVA increases, then its MVA increases. If a firm’s EVA decreases, so does its MVA. A firm’s MVA “is equal to the discounted present value of the yearly EVA it is expected to generate” (Lehn & Makhija, 1996, p.35). Stewart (1994) stated that to maximize MVA, a firm needs to maximize EVA.

Dierks and Patel (1997) calculated MVA as the addition of the firm's market value of common stock outstanding plus the market value of preferred stock plus the market value of debt minus the value of capital provided by investors.

Stewart (1994) stated that EVA is not tied to shareholder return, but to shareholder wealth. And shareholder wealth is maximized when the net present value of the project, and hence the present value of EVA, is maximized. Stewart (1994) conducted an analysis of 1,000 firms over a five year period. Stewart's analysis is that changes in a firm's EVA account for 50% of the change in a firm's MVA. The purpose of Stern Stewart and Company database "is to provide a product for benchmarking performance, assessing business and financial risk, and spotting investment opportunities" (Chenn & Dodd, 1997, p.322).

Lehn and Makhija (1996), utilized Stern Stewart & Company data on 241 firms published in four different years, 1987, 1988, 1992, and 1993. Roughly two-thirds of the firms were manufacturing firms. Lehn and Makhija (1996) computed six performance measures which are: return on equity, return of assets, return on sales, stock return, EVA, and MVA. Lehn and Makhija (1996) then correlated five of the measures with stock returns. All five measures were positively correlated with stock returns, reflecting EVA and MVA as an effective measure of stock performance.

Moreover, even though not by a large difference, the correlation of EVA with stock returns is higher than the correlation of any of the other five measures with stock returns, providing the EVA with a slight edge as a performance measure. (Lehn & Makhija, 1996, p.36)

Lehn and Makhija (1996), reviewed data from 1988-1995 departures of chief executive officer (CEO), other than health, death, normal retirement, or another job opportunity. This leaves a category of CEO departures due to job performance. Lehn and Makhija (1996) analysis revealed that CEO turnover is higher for firms whose EVA, MVA, or stock returns are lower than their respective medians. The following table reflects Lehn and Makhija (1996) analysis of EVA, MVA and stock returns in relation to CEO turnover.

Table 2

Chief Executive Officer Turnover

<u>Item</u>	<u>EVA</u>	<u>MVA</u>	<u>Stock Return</u>
Above median value	9.0%	8.3%	9.6%
<u>Below median value</u>	<u>19.3%</u>	<u>20.0%</u>	<u>19.0%</u>

Source: Lehn and Makhija (1996, p.37)

Chen and Dodd (1997) utilized the 1992 Stern Stewart and Company 1,000 firm database and retained only those firms that had sufficient public data as reported by Compustat. As such, Chen and Dodd (1997) database contains 605 firms. Through the analysis, Chen and Dodd (1997) lost 39 firms in its sample (no reason is given for the exclusion of these firms), which results in a usable database of 566 firms. Chen and Dodd (1997) results indicate that “improving EVA performance is associated with higher stock return. However, the association of EVA with stock return is not as strong as suggested in anecdotal EVA stories” (Chen & Dodd, 1997, p.331). Chen and Dodd (1997) also determined that changes in EVA only account for 26 percent of the changes in stock

return. Chenn and Dodd (1997) stated that its regression analysis revealed that many of the changes in stock returns are unexplained.

Pallium (2006) conducted a study concerning the effect of EVA on a firm's stock price. Pallium (2006) randomly selected 116 firms from S&P 500. Of the 116 firms, 41 firms were non-EVA users, and 75 firms were EVA firms for at least five years. Eight non-EVA firms were excluded from the sample (no reason was provided), leaving a balance of 33 non-EVA user firms. Pallium (2006) collected data for all 108 firms from 1983 – 2002 on the following metrics: 1) ROE, 2) EPS, 3) ROA, 4) holding period yield, 4) average cost reduction percentage, 5) revenue increase, and 6) EVA. Pallium (2006) conclusion is that “common and widely accepted metrics used by analysts and calculated for EVA users are not necessarily superior to that of non-EVA users” (p.211). Pallium (2006) study reveals that those firms that utilize EVA as a metric and management tool do not have greater stock returns than those firms who do not utilize EVA as a metric and management tool.

Worthington and West (2001) conducted a review of literature of whether EVA is a better measure in predicting stock returns. Worthington and West (2001) determined that a number of factors can influence stock returns. Worthington and West (2001) research is that earnings generally dominate in explaining stock returns.

Thus, while the concepts of EVA and MVA are popular with management accountants, the current literature does not provide a clear advantage for firms in utilizing EVA and MVA as a management tool for increasing stock return.

The concepts of a balanced scorecard, EVA, and MVA reveal a continuing integration of finance and management accounting.

History of Accounting Education

Accounting education first started as a series of business proprietary schools teaching vocational training. However, as businesses became more complex, and a national accounting association was formed, accounting education was geared towards undergraduate education and preparing students to pass the certified public accounting exam (CPA) exam. A schism developed between the profession pushing for a five year accounting education and a graduate degree, similar to other professions, and the academicians who did not believe that an additional year brought any value to the education process. This section of the literature review will provide a history of the development of textbooks and proprietary schools followed by a history of accounting education.

Textbooks and Proprietary Business Schools

The first accounting textbook written in the United States was by William Mitchell in 1796. The second accounting textbook was written in the United States, in 1804, by Thomas Turner (Sampson, 1960). Both textbooks involved double-entry bookkeeping. The textbook by Turner also detailed the procedures for a sole-proprietorship and partnership. Sampson (1960), referencing Foster, wrote in 1837 that the theory of double-entry bookkeeping is “that the whole is equal to the sum of its parts” (p.463). Turner’s textbook also describes the use of subsidiary accounts and balancing the accounts on a monthly basis.

Benjamin F. Foster, in 1837, wrote *A Concise Treatise on Commercial Bookkeeping*. His textbook utilizes a journal and ledger, with a subsidiary book for cash, bills, invoices,

shipments, and sales (Previts & Merino, 1998; Sampson, 1960). Also, Foster recommended the use of fair value accounting, that is, the value of inventory should reflect present prices versus historical cost, when the accounting books are balanced on a monthly basis (Sampson, 1960). Accounting was taught at commercial (for-profit) business colleges. Foster operated one of the earliest schools from 1834-1837 in Boston and then moved to New York City.

In 1840, Peter Duff, an accountant in Pittsburg, established the Accountant's Institute, which eventually became the Duff's Mercantile College of Pennsylvania. The school offered day and evening classes in "mercantile and steamboat bookkeeping, mercantile calculation and writing" (Givens, 1980, p.38). As was common in those days, accounting educators wrote their own textbooks. In 1846, Duff wrote *The Western Steamboat Account* which specialized in accounting procedures applicable to a specific business. Previously, most accounting textbooks dealt with general business record keeping.

In 1848, Duff wrote *Duff's North American Accountant*. It was published in various editions until 1865. In 1867, Peter Duff wrote a 400 page book titled *Bookkeeping, By Single and Double-Entry*. This book reflected the accounting process and procedures to be utilized by manufacturers, retailers, merchants, banks, and railroads. In the book, Duff demonstrates how a reserve account titled Surplus Capital Account, is created to enable dividends to be paid even when there is an economic disadvantage to do so (Givens, 1980; Sampson, 1960).

In 1850, Thomas Jones wrote *Bookkeeping and Accountantship, Elementary and Practical*. This book reflects double-entry bookkeeping with accounts such as cash, accounts receivable, accounts payable, inventory, and personal accounts. According to

Sampson (1960), Jones recommended a reserve be set up to absorb bad debt losses, and the size of the reserve should be determined at the end of the year. In addition, Jones distinguished between earned profits (accrual basis) and realized profits (cash basis) (Sampson, 1960). Jones emphasized “the financial statements as the end result of the system of accounts” (Previts & Merino, 1998, p.130). Jones is also credited with distinguishing between real and nominal accounts in his textbooks (Previts & Merino, 1998). Jones is considered the “father of the first modern American accounting text” (Previts & Merino, 1979, p.49).

In 1851, in Cleveland, OH, E.G. Folsom started a commercial school called Folsom Business College dealing with accounting and business subjects. Two of the first students were H.B. Bryant and H.D. Stratton. Both men eventually acquired Folsom Business College and changed the name to Bryant and Stratton College, and developed a chain of commercial colleges, eventually numbering over fifty schools by 1865 (Corfias, 1973). Today only thirteen schools remain in existence. Bryant and Stratton College utilized textbooks that were developed by H.B. Bryant and H.D. Stratton. Because the schools utilized similar texts and the chain of schools grew to several states, a uniform manner developed in terms of educating students (Previts & Merino, 1998).

Due to increased growth of their commercial business colleges, Bryant and Stratton franchised their schools. In 1867, Silas Packard bought out his partners in a Bryant and Stratton franchise, abolished the affiliation with Bryant and Stratton and formed the Packard Business College. In 1868, Packard wrote *Manual of Theoretical Training in the Science of Accounts*, which focused on the theoretical and valuation aspects of accounting. Packard also wrote *Counting-House Bookkeeping* which became a standard

textbook across many commercial business schools. The 350 page textbook was similar to today's intermediate accounting textbook. The text covered "a breath of topics, describing the principle books of account and discussing dividend policy for joint stock companies" (Previts & Merino, 1998, p.78). At the 1893 World's Fair in Chicago, Packard organized the American Commercial and Business School exhibit, which provided examples of how accounting and business was taught in the United States.

However, the franchise movement was not that strong due to a lack of consistency in regards to school policies. Each franchiser developed his own school policies and, in many cases, his own textbooks. Also, once a commercial business school was established and appeared to be growing, the franchiser bought out the franchise to develop his own business school (Previts & Merino, 1998).

According to Previts and Merino (1998), prior to 1875, bookkeeping was probably the only business subject taught in high school. Many colleges did not want to have professional studies. Previts and Merino (1998), referencing Day (1829), who in turn references an 1828 Yale report, in which the Yale faculty notes, "The course of instructions which is given to the undergraduates in the college, is not designed to include professional studies. Our object is to not to teach that which is peculiar to any one of the professions; but to lay the foundation which is common to them all" (p.75). This conflict of what type of accounting education should be taught in college continues to this day.

Establishment of Schools of Accountancy

There were several unsuccessful attempts to establish a school of commerce or business at different universities. The University of Louisiana (now Tulane University),

in 1851 started a business school, but it was discontinued in 1857. A school of commerce at the University of Wisconsin failed in 1866 as well as one at the University of Illinois, which failed in 1880. In 1869, General Lee, President of Washington College (now Washington and Lee University) proposed a school of commerce, but the idea ended with Lee's death in 1870 (Lockwood, 1938; Webster, 1978; Slocum & Roberts, 1990).

However, by the 1880's, as America was becoming an industrialized country, there was a demand for training of bookkeepers and accountants. "Many Americans believed ... that trained experts in scientifically ordered bureaucratic organizations would make things better, and that to be a 'professional' was to be a social savior" "The key to professionalism was training and expertise" (Van Wyhe, 2007a, p.165)

One of the first non-commercial business schools was established in 1881 at the University of Pennsylvania. Joseph Wharton made a gift of \$100,000 to establish a school for "imparting a liberal education in all matters concerning Finance and Economics" (Sass, 1982, p.21). Accounting courses were offered in 1883 and consisted of "two terms of instruction, involved several technical requirements, as well as a series of lectures on 'The Theory and Practice of Accounting'" (Previts & Merino, 1998, p.151). The textbooks were Selden Hopkins's *Manual of Exhibit Bookkeeping* and C.C. Marsh's *Bookkeeping and Joint Stock Accounts* (Lockwood, 1938).

One of the stated purposes of the AAPA was "establishing a high standard of professional attainments through general education and knowledge" (Carey, 1969, p.41; Roberts, 1987, p.99). In 1892, AAPA petitioned the New York Board of Regents to establish a school of commerce and business. However, the Board of Regents rejected the petition because the Board objected to a business school. The Board thinking that their

resources for college should entail a liberal arts education (Langenderfer, 1987), the AAPA resubmitted their petition requesting a professional school of accountants. The resubmitted petition stated that the AAPA would provide financial support, building, furniture, books, supplies, and instructors (Carey, 1969; Langenderfer, 1987). The Board of Regents agreed to a School of Accounts starting in the Fall of 1893. At the January 17, 1893 AAPA annual meeting, President James Yalden stated that the object of the New York School of Accounts is to “educate young men for the profession of accountancy and also in the principles of commercial life” (Roberts, 1987, p.102; Slocum and Roberts, 1990, p.65). The prospectus for the school listed several reasons for the establishment of the school. One, to organize the profession along similar professions such as law, medicine, engineering, and architecture. Two, to provide competent and reliable personnel to the profession. Three, to provide business education as well as teaching proficiency in accounting (Slocum & Roberts, 1990). “Examples of actual business transactions provided by the instructor’s practice were to be exhibited, explained, and analyzed” (Slocum & Roberts, 1990, p.67).

However, there were issues with the school. Only seven students were registered and all except for one instructor were part-time faculty, as the instructors had a full time practice. Also, no other source of funding was obtained.

On July 11, 1894 the faculty passed the following resolution: “That in the opinion of the Faculty it is undesirable to continue the School of Accounts and they recommend that the Trustees take such action as they may decide upon to surrender the charter to the Board of Regents or otherwise” (Roberts, 1987, p.102). The New York School of Accounts ceased to exist. However, the episode convinced many members of the AAPA

that university affiliation was critical for the long-term viability of the education of the profession (Langenderfer, 1987).

In 1898, the University of Chicago established a College of Commerce and Politics (later renamed the College of Commerce and Administration). Initially ten students were registered and within three years there were eighty-nine students (Previts & Merino, 1998). Professor Hatfield, in teaching accounting emphasized that “accounts were studied and interpreted from the point of view of the business man rather than that of the professional bookkeeper” (Allen, 1927, p.154).

After passage of the CPA Act in New York State, the New York State Society of Certified Public Accountants (NYSSCPA) was formed. Several members had been associated with the unsuccessful effort of starting the New York School of Accounts a dozen years earlier. In 1900, after lobbying by several members of AAPA and specifically by Charles E. Sprague (former president of IA) a School of Commerce, Accounts, and Finance was established at New York University (NYU). Charles Haskins (founder of the CPA firm Haskins & Sells) served as the first dean and professor of accounting. The accounting profession served as guarantors against any loss and provided much of the faculty. The purpose of the school was “preparing men for the accounting profession” (Van Wyhe, 2007a, p.167). The curriculum was geared towards the subject matter of the New York State CPA exam. In 1900, there were twelve colleges and universities offering accounting courses. By 1926 over 335 colleges and universities offered accounting courses. At least 65 schools offered undergraduate degrees and 30 schools offered master’s degrees in accounting (Previts & Merino, 1998; Van Wyhe, 2007a).

Accounting Curriculum

Most accounting courses were “to secure proficiency in opening and closing books, journalizing, rendering statements, tracing errors, analyzing accounts and drawing business papers” (Lockwood, 1938, p.139). Most accounting faculty consisted of practicing CPAs, and emphasized procedures and techniques, and geared the curriculum towards the subject of the particular state’s CPA exam. “The type of accounting curriculums offered at colleges and universities mirrored the requirements of the CPA exam and usually included courses on accounting principles, auditing, and advanced accounting and cost accounting” (Langenderfer, 1987, p.306). The introduction of the corporate income tax in 1909 and the individual income tax in 1913, followed by tax questions on the CPA exam, resulted with the introduction of tax courses in accounting curriculum (Langenderfer, 1987). “In addition, many schools offered specialized courses at various times on CPA problems, fiduciary accounting, bank accounting, cooperative accounting for farmers, railroad accounting, public accounting, foreign exchange, analysis of corporation report, mine accounting, diary accounting, and so-on” (Langenderfer, 1987, p.306). Even W. Sanders, Davies, president of AIA was concerned about the emphasis in accounting curriculum being placed on focusing students towards the subject matter on the CPA exam. Davies stated that educators were moving in an “erroneous assumption (that) preparing men for the CPA examination was what was most needed” (AIA, 1917, p.46).

Practitioners were recommending that students receive a liberal arts education followed by a professional school of accountancy. This was similar to other professions such as law and medicine. Practitioners thought that if the process of becoming an

accountant was similar to law or medicine, then the prestige of accounting would increase. However, accounting educators geared accounting curricula towards passing the CPA exam. As such, schools relied upon practitioners to teach technical aspects of accounting. In 1910, Joseph F. Johnson, dean of NYU's School of Commerce, Accounts, and Finance lamented about the reliance of practitioners as instructors. Dean Johnson stated, "... universities have found it almost impossible task in the past ten years to find men who can teach accounting. Those who knew it, couldn't teach, and those who could teach didn't know it" (Zeff, 1966).

Joseph Sterret (former two-time president of AAPA) in a 1921 interview with Max Watson of the *New York Evening Post* stated, that he "would advise every young man who wishes to take up accounting (ought to) take up, if possible, a full college course in general subjects, followed by a post-graduate work in accountancy" (Watson, 1921). The tug of war in accounting education between preparing students on a vocational basis geared to passing the CPA exam, and having an education process similar to law or medicine, continues to this day.

While over 335 institutions offered accounting courses by 1926, there was no uniform guidance in terms of accounting curriculum. In addition, none of the states which had CPA laws had a requirement for a college education to take the CPA exam. In 1929, New York State legislature passed a law which required, starting in 1938, that all candidates sitting for the CPA exam have a college degree. The purpose was to "increase the status of public accounting to the level of medicine, dentistry, and other professions" (Webster, 1938, p.119). In 1936, Columbia University, modeling something similar to its school of law, announced that it was offering a five year course of study for accounting: two years

of liberal arts and three years of technical training (McCrea & Kester, 1936). Thus, Columbia University became the first proponent of a five year course of study for accounting.

In 1907, Joseph F. Johnson at the annual meeting of the AAPA, presented a paper on accounting education. Shortly thereafter, the AAPA formed a Committee on Education which would issue an annual report on the state of accounting education (Bricker & Previts, 1990). Initially the Committee was composed of practitioners. However, friction developed between the AIA and the educators concerning the development of accounting curriculum and standards for accounting education. In 1930, in order to reduce friction and improve relations, the AIA granted membership to educators provided the individual was certified and had at least five years of teaching experience (Bricker & Previts, 1990). In 1934, Professor William A. Patton (University of Michigan) was chairman of the Committee of Education and issued a report on accounting education. The recommendations of the Committee were: 1) college education should be part of the preparation for a career in accounting; 2) the education preparation besides accounting should include finance, economics, and money and banking; 3) the AIA should not formulate detailed accounting curriculum as this should be done by each accounting institution and nor should AIA accredit accounting schools; 4) only individuals with the highest caliber and ability should be allowed to enter the profession; and 5) greater emphasis should be placed on increasing the educational requirements for becoming a CPA and embody those requirements via the state legislative process (Carey, 1969). At the time the AIA Council (executive committee) did not follow up on the Committee's recommendations.

In 1935, Professor Roy Kester (Columbia University and a member of the 1934 Committee) chaired the Committee. Professor Kester made a survey of the accounting courses being taught at colleges and universities. Based on the survey results, the Committee made the following recommendations: 1) the minimum education requirement for accounting should be a four year college degree; 2) a four year – 120 semester hours – degree should be evenly divided between business professional subjects and liberal arts subjects; 3) business professional courses should be in the areas of accounting, auditing, financial reporting, business, law, finance, and economics; and 4) AIA should develop standards concerning accounting curriculum, content, faculty, and other resources. This last recommendation was directly contradictory to the recommendation of the 1934 Committee. The AIA Council approved the recommendation that a college degree should be a requirement for entering the profession as well as formulating standards for collegiate accounting courses.

In 1936, the Committee recommended that the “Institute actively encourage amendments of CPA laws to set up higher educational requirements, and that ultimately five years of cultural-professional education should be required – three years of professional training based on two years in the liberal arts” (Carey, 1969, p.269). The Committee, following the lead of Columbia University was recommending five years as a course of study to enter the accounting profession, putting it on similar basis as law and other professions. However, the AIA Council did not follow up on this particular recommendation.

Over a three year period, the AIA’s Committee on Education had made the same recommendations concerning accounting education. That at a minimum a four year

college degree, composed of equal number of liberal arts courses as well as accounting and business courses, should be the requirement for entering the profession. In addition, to be similar to other professions, a five year course of study was preferred. Even though the AIA Committee on Education had academics as chairmen, many academicians were not pleased that the practitioners (AIA) were encroaching on their turf. By 1940, “many academicians were unhappy with having practitioners develop detailed curricula and standards for the accreditation of accounting courses in business schools” (Van Wyhe, 2007a, p.168). This caused quite a bit of discussion between the practitioners and academicians. The practitioners were able to determine the requirements for the CPA exam and many academicians were gearing their accounting courses and programs towards that endeavor. However, the discourse was halted due to World War II. Accountants were needed to support the war effort. After the war, the expansion of the economy created a demand for accountants which reduced the incentive for changing the education requirements for individuals to enter the profession.

The Perry Report

In 1949, Donald P. Perry became chairman of the AIA’s Board of Examiners. Mr. Perry formerly had been partner of Lybrand, Ross Brothers & Montgomery. In 1951, Mr. Perry delivered a paper at the AIA annual meeting stating that each state had different education and experience requirements for the CPA exam. Perry proposed that a commission be established to determine a national standard for education and experience for the CPA exam. The AIA established the Commission on Standards of Education and Experience for CPAs with Perry as chairman:

The 24 members of the Commission included practicing accountants from both large and small firms in various parts of the country, a liberal representation of accounting professors and deans of schools of business, not all of whom were accountants, and one educational administrator who had served as associate commissioner of education for New York State. (Carey, 1970, p.265)

The study's directors for the Commission were two academicians. The first was Professor Leslie Buchan of Washington University and then Professor Frank Smith from the University of Michigan. In 1956, the Commission's report, referred to as the Perry report, was published by the Bureau of Business Research (University of Michigan) and over fifty-five thousand copies were distributed (Carey, 1970).

The Commission's report contained a number of items. One, was a list outlining the characteristics of a profession. The report commented that these characteristics were completely met by the law, medical, and theological professions, but only in various degree by the accounting profession. The report also recommended, just as previous studies had recommended, that entrance to the accounting profession be a graduate degree. "It envisaged professional accounting programs within the framework of the university schools of business administration, which would be comparable in approach and objectives to the professional schools established in other fields" (Carey, 1970, p.267). "The conclusion reached by many is that we need a post graduate professional program organized in the university schools of business specifically for preparation of the certified public accountants" (Perry, 1955, p.67).

The report did not specify any particular curriculum, rather stating that the curriculum should be determined by the AAA, which still adhered to the idea that half of the courses

in a four year program should be liberal arts and the other half business courses. While no specific curriculum was recommended, the report suggested that the “subject matter should cover oral and written communication, auditing, taxes, accounting systems and control, standards of professional conduct, administration of a public accounting practice, accounting principles, and business policy” (Carey, 1970, p.268).

The report also recommended a three month internship be part of the accounting program. Finally, the report recommended that education would be the primary preparation for a career in accounting. Education would be the requirement to take the CPA exam and the CPA certificate would be the “mark of competence to *enter* the profession – rather than the mark of competence to practice as a principal” (Carey, 1970, p.267). This recommendation caused quite a stir and discourse among practitioners. Four members of the Commission dissented loudly stating that the CPA certificate should be viewed as the mark of competence to practice and that experience was necessary to be awarded the CPA certificate. An AA committee charged with studying the Commission’s report stated in terms of education, “a five-year program does not presently appear necessary to accomplish a desirable level of professional education” (Van Wyhe, 2007a, p.173). Therefore, there still was a dichotomy between the profession which wanted a five year professional program and the educators which felt that a four year program would be sufficient to enter the profession.

The Carnegie Corporation and Ford Foundation Reports

In 1959, the Carnegie Corporation and the Ford Foundation published two reports concerning business education. The study, the *Education of American Businessmen* was chaired by Frank C. Pierson and funded by the Carnegie Corporation. The study, *Higher Education for Business* was chaired by Gordon and Howell and funded by the Ford Foundation. The authors of both studies were economists and felt that post graduate education was necessary for a career in accounting. Carey (1970) summarized the findings of the reports as follows:

Many accounting courses were said to contain too much descriptive material of a vocational-training type, and too little of the type of instruction that would encourage an individual's maximum intellectual growth. Financial accounting and auditing were regarded as inferior to managerial accounting as subjects for academic study. (p.273)

The Pierson report recommended "that schools should stress the application of general knowledge and scientific methods to significant issues of business policy" (Langenderfer, 1987, p.311). The Pierson report felt that the education was vocational training, and as such would not attract the best students, and were not preparing students to perform well in the business community. The Gordon and Howell report recommended:

... more basic education at the undergraduate level, followed by two years of graduate training that would provide business students with a higher order of analytical tools, greater degree of organizational skill, greater capacity to deal with the external environment of business and greater ability to cope with change. (Langenderfer, 1987, p.311)

Gordon and Howell envisioned that students would receive a four year liberal arts education followed by a graduate degree program with an emphasis on analytical and behavioral skills. “Accounting in such programs was perceived as being oriented towards management’s use of information in making decisions” (Langenderfer, 1987, p.311). This thought process was geared towards preparing accountants for industry, something similar to the CMA program, which occurred 13 years later. For accounting students preparing to enter public accounting, the Gordon and Howell Report recommended that accounting students take a limited number of accounting courses in the undergraduate program and take a wider range of courses in the graduate program. The authors thought that accounting was too mechanized, that undergraduate accounting programs were vocational training. Both reports stated that greater emphasis should be placed on a general education versus the various technical approaches found in many accounting programs (Bricker & Previts, 1990). Both of these reports caused the AICPA to rethink its views on accounting education.

Horizons for a Profession

Mr. Clifford Heimbucher, member of the AICPA executive committee contacted Mr. John Gardner, president of Carnegie Corporation, to jointly finance a study “to guide educational institutions in deciding what kinds of accounting courses might appropriately be taught in business schools” (Carey, 1970, p.276). In 1963, a twelve man Commission on the Common Body of Knowledge, chaired by Elmer Beamer (partner in Haskins and Sells) was formed to supervise the study. The study directors were Robert H. Roy (Dean of Engineering at John Hopkins University) and James H. MacNeill (professor at

Fordham University). The Commission was composed of practitioners (partners in large and medium size firms), academicians, vice-president of the New York Stock Exchange, vice-president of a bank, and a partner in a law firm. Questionnaires were developed and sent to accounting firms to determine the current and future scope of practice; Catalogs of various educational institutions were reviewed in terms of scope and type of accounting courses offered. Interviews were conducted with a number of partners in accounting firms. Discussions were held with members of various state accounting societies. The work effort and study took five years to conduct. The results were published in 1967 by the AICPA in a book titled *Horizons for a Profession*, known as the Roy and MacNeill Report.

The report recommended areas of study in accounting, humanities, economics, behavioral science, law, mathematics and statistics, and various areas of business (finance, production, marketing, personnel relations, and management) (Carey, 1970). In the area of humanities, the report recommended oral and written communication as well as a study of logic and ethics. In addition, microeconomics and macroeconomics were recommended. These recommended areas of study are reflected ten years later in the development of the CMA. While the study was geared towards the education requirements to become a CPA, it becomes clear that areas of study are reflective of what prepares someone to become a management accountant. The areas of microeconomics and macroeconomics, statistics, communication (oral and written), finance, and management are reflected on the CMA exam.

In terms of education, the report stated:

Descriptive-type, vocational training course in the various areas of subject matter were not recommended; rather stress was laid on basic understanding of principles, and sufficient general knowledge of techniques and procedures to permit a beginning CPA to adapt to changing needs and to equip himself by continuing study for specialization. (Carey, 1970, p.279)

Again, another report recommended greater emphasis on general education subjects and less emphasis on vocational type training. Per the agreement of the Carnegie Corporation (who financed 50% of the study), the findings were presented by the study directors and as such were not approved by the Commission or the AICPA executive committee. This was so that the study could not be changed or altered due to political pressure within the AICPA. As such, the AICPA could not endorse the study as one of its own. Therefore, the AICPA created another Committee on Education and Experience Requirement for CPAs, which was chaired by Elmer Beamer. The Committee's main responsibility was to recommend policies to the AICPA executive committee in light of the findings of the *Horizon* (Roy & MacNeill) report.

The Beamer Report

The Committee spent two years in reviewing the *Horizon* (Roy & MacNeill) report, as well as previous studies, conducting interviews and questionnaires, and other research devices. In 1969, the Beamer Report accepted the *Horizon Report* as an authoritative document. The Beamer Report reiterated that five years of college education are needed to enter the accounting profession and that this recommendation be implemented by 1975. In addition, the Beamer Report also stated that the accounting curriculum, in terms

of the number of courses as well as the content of courses, is the responsibility of the academic community. However, accounting curriculum is still a continuing concern of the profession.

During the 1960's, the Roy and MacNeill Report, and Beamer Report reiterated practitioners' desire for a five year (post graduate) degree as a minimum qualification for entering the profession. As mentioned earlier, the reason was to bring the accounting profession to a similar level as other professions such as law, dentistry, or medicine. However, many in academia still maintained that four years of study was sufficient to prepare an individual to enter the profession. Dr. Robert Mautz, speaking for many academicians, questioned the validity of additional educational requirements:

It seems to me there is something almost unethical about this kind of approach, particularly for the most ethical profession. Unless there is a real need for the educational time, can we conscientiously advocate additional years of school on the part of candidates for the profession merely because it may add to their own professional prestige? (Mautz, 1964, p.89)

In addition, during the 1960's there was a large economic expansion which created a significant demand for accounting graduates. Therefore, while the AICPA was proposing a five year program, the accounting firms were hiring accounting students as soon as they graduated. The demand for accounting graduates increased so much that accounting firms were hiring non-accounting graduates, such as finance, economic, business, and mathematics graduates and training them in accounting on the job. The demand and hiring reduced the push from the AICPA membership for a five year program. Also, to meet the increasing demand for accounting students, "accounting education in the 1960's

was still at the undergraduate level with emphasis still on successful completion of the CPA exam” (Langenderfer, 1987, p.312).

The Albers Report

In 1976, the AICPA Education Committee set up a task force, headed by Wayne Albers to 1) determine if the recommendations in the 1969 Beamer Report were still appropriate in the 1970’s; and 2) review and reevaluate the Beamer Report recommendations. The Albers Report reaffirmed the recommendations of the Beamer Report except the five year requirement. The Albers Report recommended 50 semester hours with a graduate degree at the end of the 150 semester hours versus the five year requirement stated in the Beamer Report. In addition, the Beamer Report recommended that the five year requirement be implemented by 1975. Since 1975 had passed, the Albers Report recommended that the 150 semester hour requirement be implemented at the “earliest practical date” (Langenderfer, 1987).

The Cohen Report

In 1974, the AICPA established an independent Commission on Auditors’ Responsibilities, which was chaired by Manuel F. Cohen. The Commission was “charged to develop conclusions and recommendations regarding the appropriate responsibilities of independent auditors” (Langenderfer, 1987, p.315). The Commission issued its report in 1978, known as the Cohen Report. While the Cohen Report did provide recommendations concerning the audit function, it also noted the relationship between the education process and the quality of accounting graduates entering the profession. The

Cohen Report noted that as accounting becomes part of a business curriculum there is greater emphasis on managerial accounting and financial analysis. “The commission noted that formal education did adequately prepare students to meet the demands and risks of public practice” (Langenderfer, 1987, p.315). As such, the commission recommended: 1) the education process can be improved by having graduate schools of accountancy similar to law schools, 2) the lack of graduate education limited the quality of people entering the profession, and 3) if accountants came from graduate schools this would raise the quality of the CPA exam. This was the first report that linked the accounting education to certification exam.

1980's

Bedford Report

In 1984, the AAA executive committee chartered the Committee on the Future Structure, Content, and Scope of Accounting Education, which was chaired by Dr. Norton Bedford (University of Illinois). The twelve member committee had seven members from academia, three from public accounting firms, one from industry (Fortune 20 firm) and someone from the General Accounting Office (GAO – in 2007 GAO changed its name to the General Accountability Office). The purpose of the committee concerned the “future structure, content and scope of accounting education, with associated charge to recommend educational objectives and goals for adjusting university accounting education by the year 2000” (Bedford & Shenkir, 1987, p.86).

The Committee reviewed, from 1925 to 1985, the development and evolution of accounting through public practice, industry, and government. The Committee

determined that during the past 60 years there had been significant changes in public practice in terms of the services provided to customers, number of accounting standards, increased number of accountants in private industry, government, and non-profit organizations.

The Committee also reviewed, from 1925 to 1985, the development of accounting education. The review revealed that the “substance of accounting education has remained essentially the same over the past 50 years” (Bedford & Shenkir, 1987, p.84). The Committee noted that most colleges and universities require 120 semester hours for a bachelor degree with 24 to 30 hours in accounting. The Committee noted that the accounting subjects being taught today: principles of accounting, intermediate accounting, auditing, cost and/or managerial accounting, tax, are the same as what was taught 60 years ago, with the recent addition of accounting information systems. And, “accounting education has not made any significant efforts to improve its teaching methods over the past 60 years” ... “university accounting education has persisted in teaching the content of textbooks rather than development of student’s capabilities” (Bedford & Shenkir, 1987, p.86).

The Committee Report (known as the Bedford Report) made twenty-four recommendations, of which the ones concerning accounting education, are: 1) the state of accounting is inadequate to meet the current and future needs of the profession, 2) accounting education needs to be reevaluated to meet the future needs of the profession (American Accounting Association Committee on the Future Structure, Content, and Scope of Accounting Education, 1986; Bedford & Shenkir, 1987).

The Committee recommended that colleges and universities “(1) approach accounting education as an information development and distribution function for economic decision making, and (2) emphasize students’ learning to learn as the primary classroom objective” (American Accounting Association Committee on the Future Structure, Content, and Scope of Accounting Education, 1986, p.169). The Committee’s recommendation is to reorient accounting education from the preparation of financial statements to an expanding economic/financial information and distribution system.

The Committee also stated that teaching methods needed to be changed. The Committee noted that most teaching methods were the same as 50 years ago, lecture with students performing routine problem solving. The Committee noted that students worked on problems in which there is a known answer. Also, as the number of authoritative pronouncements has increased so has there been an increase in the rigidity of applying accounting standards. The Committee, while acknowledging that an accounting body of knowledge needs to be learned, also needs to:

... develop the ability to use that knowledge analytically, in creative and innovative ways in accordance with high standards of professional ethics. The ability to apply accounting knowledge requires that students develop pertinent skills and attitudes regarding, for example, how to become aware or sensitive to the needs of others, how to listen, how to understand management requirements, how to negotiate, and how to relate to the information requirements of the general public. (American Accounting Association Committee on the Future Structure, Content, and Scope of Accounting Education, 1986, p.178)

The Committee was recommending that accounting education needs to teach students the ability to apply accounting concepts and knowledge to new situations to meet the needs of management and others. The Committee recommended greater use of case studies to increase student's analytical ability and develop student confidence in problem solving.

150 hour rule

A number of reports, starting in 1937, recommended a five year degree for accounting students. The Albers Report did not recommend a five year program for accounting students. Instead the Albers Report recommended 150 semester hours with a graduate degree at the end of the 150 semester hours.

In the early 1980's there were a number of bank failures and the profession spent two years in Congressional investigations and hearings concerning the role and responsibilities of auditors. In order to avoid increasing government regulations, the AICPA made several policy changes and promoted the 150 hours of higher education (120 hour bachelor degree plus 30 additional hours) as part of a reform effort (Van Wyhe, 2007b). "The primary force behind the 150-hour educational requirement for future CPA candidates is the perceived inadequacies of existing accounting programs in preparing students to meet the demands of the real world" (Novin & Tucker, 1993, p.282).

In 1987, the AICPA executive committee put together six proposals to its by-laws, one of which was to require new members to the AICPA, after 2000, to have 150 hours of higher education. In February 1988, the AICPA announced that the membership voted overwhelmingly the approval of all six by-law changes. The AICPA began an effort to

have all 54 jurisdictions (the 50 states, District of Columbia, Puerto Rico, Virgin Islands, and Guam) to implement the 150 hour rule education requirement for the CPA exam effective 2000. Thus, while the AICPA could not directly make changes to the accounting curriculum, it did have significant influence in the curriculum, as to what is required for the CPA exam.

The 150 hour rule has had quite a bit of controversy on both the practitioners and academia. When the rule was passed by the AICPA membership it was implied that students would receive a graduate degree at the completion of the 150 hours. However, the AICPA did not specify the educational content for the additional 30 hours. This led to three major variations among colleges and universities. One, the student completes a second bachelor's degree, second the student receives a Master's of Business Administration, or third the student receives a Master's degree in Accountancy. There have been several suggestions between practitioners and academia concerning the content of the additional 30 hours.

Novin and Tucker (1993) conducted a survey of practitioners concerning what additional courses should be included in the additional 30 hours. Novin and Tucker's survey occurred before the implementation date of 2000 for the 150-hour rule. Novin and Tucker (1993) randomly surveyed "1,000 public accountants who are partners, principles, or sole practitioners in US offices of CPA firms" (p.275). They received 276 usable responses for a response rate of 28%. The survey results revealed that written and oral communication were the top two choices followed by an increase in knowledge in the use of electronic spreadsheets, computer software, and ethics. Grouping of the top ten results

were greater emphasis in communication skills, computer and computer technology skills, ethics, and mathematics.

Renner and Tanner (2001) conducted a survey of practitioners concerning what degree(s) accounting students should receive after completing the 150-hour educational requirement. Renner and Tanner (2001) conducted their survey after the 2000 implementation date for the 150-hour rule. Renner and Tanner surveyed 2,000 “accounting professionals in eight states with a 150-hour educational requirement” (p.133). Renner and Tanner (2001) had a response rate of 19% which equates to 380 responses, slightly larger than Novin and Tucker (1993) survey. The survey results were mixed. The top choice among accounting professionals (private industry and public practice) was for accounting students to have a double major in accounting and management information systems and receive a bachelor’s degree. The second choice for accounting professionals in private industry was for the student to receive a bachelor’s degree in accounting and an MBA, specializing in accounting or finance. The second choice for accounting professionals who are in public practice was for students to receive a bachelor’s degree in accounting and a master’s in taxation. The respondents to the survey stated that graduates with a master’s degree would be paid more than a bachelor’s degree. As such, it would indicate that students would opt to acquire a master’s degree versus a double major.

Shafer and Kunkel (2001) conducted a survey of academicians concerning the implementation of the 150-hour rule. Shafer and Kunkel (2001) conducted their survey after the 2000 implementation date for the 150-hour rule. Shafer and Kunkel (2001) surveyed 350 “chairpersons of accounting departments at all AACSB-accredited business

schools in the United States and Canada” (p.79). Shafer and Kunkel (2001) received 114 usable responses reflecting a response rate of 33%. The results of the survey indicated that eighty-three percent offered a master’s degree, either an MBA or a master’s in accounting for the additional 30 hours. “These results indicate that most accounting departments have responded to the 5-year education requirement by simply making master’s programs available to CPA exam candidates” (Shafer & Kunkel, 2001, p.79).

However, while accounting professionals in public practice supported the 150-hour rule, accounting professionals in private industry were ambivalent of the 150-hour rule. Ethridge and Heminway (1993) conducted a survey concerning the attitudes of management accountants on the need for the additional 30-hour educational requirement. The results of the survey are:

... that nearly 90% of respondents believe that four years of college adequately prepares a student for an entry-level staff accounting position ... There is an overall perception that a fifth year of education would not make a graduate more valuable to the organization. (Ethridge and Heminway, 1993, p.69)

Other conclusions from the survey are that accounting graduates need better communication skills and a concern that a fifth year “will cause a decrease in the number of students selecting accounting as a major” (Ethridge & Heminway, 1993, p.69). The concern is that students will not major in accounting if they know that they have to complete a fifth year in order to take the CPA exam. Many respondents did not feel a fifth year was necessary in order to take the CMA exam.

History of Management Accounting Education

Maher (2000) divides the history of management accounting education into three periods. The first period can be “traced back at least to the beginning of the Industrial Revolution, management accounting as a teaching discipline appears to have gotten off the ground in the 1940’s” (Maher, 2000, p.336). The second period is the “new wave” from the 1940’s to the early 1980’s. The third period is the second “new wave” from the early 1980’s to the present (Maher, 2000). This section will reflect the three periods of management accounting education as well as the development of a common body of knowledge for management accountants, history of the Institute of Management Accountants (IMA) and the Certified Management Accountant (CMA) program.

The First Period of Management Accounting Education

Accounting education, from the early proprietary schools to the 1950’s was geared towards teaching students financial accounting. However, industrialization of the nation brought subtle changes to textbooks. In 1854, John Fleming wrote *Bookkeeping by Double Entry* and changed the name of the merchandise trading account to factory account to reflect cost accounting considerations. From the 1850’s to the 1890’s, there was very little writing in textbooks concerning cost accounting, known at that time as industrial accounting. This could be that during this period most of the industrial analysis was performed by owners or engineers, who had a “feel” for the business and accountants may not have had intimate knowledge of the factory. Also, there may have been less writing in order for firms to maintain a competitive advantage (Johnson & Kaplan, 1987; Previts & Merino, 1998). Garner (1968) stated:

During the decades 1820 – 1880 little can be found which is of interest in the development of cost accounting ... The absence of striking innovations is rather peculiar since many lines of industry were rapidly gaining headway ... It is likely that most manufacturing firms simply modified the then familiar trading account to take care of the factory charges. The ordinary goal was, therefore, the derivation of an interim profit figure rather than the cost of production. Almost no firms had worked out the details of how to show the product flowing from one account to the other on the general ledger. (pp.216-217)

From the 1880's to 1900, "industry was being revolutionized by the factory systems, widespread use of mechanical equipment, and devices for rapid communication and transportation" (Previts & Merino, 1998, p.161). This led to increased emphasis on cost accounting in textbooks and later in accounting curriculum.

In 1885, an Army ordinance officer, Henry Metcalfe wrote *Cost of Manufacturers*, concerning the cost and manufacture of ordinance. Metcalfe was a lecturer at AIA meetings concerning cost accounting procedures. In addition, AIA at several of its meetings would have topics of discussions concerning cost accounts for various types of factories, brand stores, and cost accounting for telephone companies (Previts and Merino, 1998).

Boer (2000) describes a 1919 cost accounting textbook that "focused exclusively on the procedures that accountants follow to track and report costs" (p.316). Anthony (1989) referencing Neuner (1937) cost accounting textbooks provided information on how to complete forms and perform several equations. However, the textbooks did not provide a conceptual framework as what to do with the information. Textbooks dealt with different

aspects of cost accounting in terms of determining the cost of a product versus managerial accounting in terms of accounting information assisting managers in operating the business (Anthony, 1989; Boer, 2000).

In 1933, Dr. G. M. Brett the department chair of accounting at the College of the City of New York made a survey of teaching cost accounting at thirty-one colleges. The survey results indicated that twenty-eight out of thirty schools offered a one semester elementary cost accounting course and twelve schools offered a one semester advanced cost accounting course. In the elementary cost accounting course, twenty-three schools taught standard costs, twenty schools utilized a practice set as part of the course, and ten schools had a prerequisite of a management course. The survey also revealed that many of the respondents believed that accounting students who plan on entering industry should take a year in cost accounting.

The Second Period – “new wave” - of Management Accounting Education

The start of management accounting appeared in business schools curriculum in the late 1940's (Maher, 2000). In the January 1945 issue of the *Accounting Review*, a professional accountant was defined as “any one who practices accounting on a professional basis as contrasted to a strictly clerical or routine bookkeeping and procedural level. As such it would include the work of internal accounting and auditing as well as the professional practice of the independent public accountant” (Smith, 1945, p.17). By 1951, AAA was stating that not only were accountants who worked for private firms “professionals” but also there should be a dual track in accounting curriculum; one for public accounting and one for private accounting (Van Wyhe, 2007a). In addition,

accountants who worked in private firms needed to be oriented towards the concerns of the management of the firm. As such, the education requirement needed to be focused towards these concerns.

In the late 1940's, Gordon (1950) of the University of Akron, conducted a survey of the membership of the Akron chapter of the National Association of Cost Accountants (NACA – now known as the Institute of Management Accountants). The Akron chapter represented a significant number of individuals who were involved in manufacturing. Thus, the survey was given to practitioners in cost accounting. The survey was in two parts. The first part consisted of all required courses for students majoring in business at the University of Akron. The second part of the survey consisted of elective courses that cost accounting students might take, in addition to their required accounting courses. The results of the survey were that students should increase courses in budgetary control, advanced cost accounting, and advanced accounting. Also, that a broad liberal arts education, in addition to accounting courses were needed in order to equip the cost accounting student to handle a number of issues that might arise in the workplace. The survey also revealed that many members thought that a five year program was “necessary to cover the goals of vocational and general education” (Gordon, 1950, p.197).

Anthony (1989) believes that management accounting became separate from cost accounting in the 1950's:

Cost accounting texts dealt entirely with numbers, while management accounting recognizes that human beings use the numbers. Cost accounting texts emphasized cost finding: the objective was to find the cost of manufacturing products. ...

Management accounting texts emphasize the use of accounting information by

managers. The objective was to assist managers and to influence their behavior.

(Anthony, 1989, p.3)

Anthony (1989) stated that in 1937, he studied Neuner's *Cost Accounting: Principles and Practices*. Three-quarters of the book concerns specific procedures on "journal entries, requisitions, vouchers, purchase orders, petty cash slips, bank reconciliations, and ruling and balancing accounts. The remaining quarter touch on familiar topics: job costs, standard costs (with quantity and price variances), joint costs, by-product costs, and break-even charts" (Anthony, 1989, p.2). In addition, Bill Vatter wrote a chapter in Neuner's textbook concerning some items on managerial accounting.

In 1950, *Managerial Accounting*, was published, which was an expanded version of what Vatter wrote in the 1930's for Neuner. Vatter (1950) stated, "The major function served by both public and managerial accountants is to use their independent judgment with complete freedom; thus they may observe and evaluate objectively the fortunes and results of enterprise operations" (p.8). Anthony (1989) believes that Vatter's material that he wrote for Neuner in the 1930's as well as the 1950 textbook, was one of the earliest materials on management accounting.

Yet the subject matter in the textbooks changed during this period. Horngren (1989) stated that the emphasis in cost accounting textbooks changed over a twenty-five year period, with less emphasis on inventory valuation (a financial accounting concept) and greater emphasis on management decision-making. The following table reflects the changes in textbook material from 1945 to 1970.

Table 3

Content of Cost Accounting Textbooks, 1945 – 1970

<u>Year</u>	<u>1945-1950</u>	<u>1951-1960</u>	<u>1961-1970</u>
Number of books examined	7	13	14
Topics			
Inventory valuation	73%	64%	46%
Cost control	21%	27%	21%
<u>Management decision-making</u>	<u>6%</u>	<u>9%</u>	<u>33%</u>

Source: Horngren (1989, p.23)

Greater emphasis was placed on topics relating to assisting management in decision-making. Such topics include direct costing and cost-volume-profit (contribution margin) method, responsibility centers, as well as full costs. Research in areas such as:

... converting indirect costs into direct costs ... desegregating departments into cost centers, each with its own measures of output; making refinements in standard costs; using learning curves and similar productivity measures; analyzing causes of indirect costs and finding bases of allocation that reflect such causes; using reciprocal allocations; developing new cost categories, (Anthony, 1989, p.4)

Relevant costs became an important research topic in the 1950's and 1960's. That is, what are the costs that a manager needs to make a decision. The emphasis being “which accounting quantifications would lead to wiser economic decisions considered in isolation from their organizational contexts” (Horngren, 1989, p.23). Horngren (1989) believes research in management accounting reflected changes that occurred in organizations concerning the relationship between relevance and motivation. In the

1950's and 1960's, the focus was on relevance, whether the manager utilized the correct decision model, which led to motivation in terms of performance evaluation of the manager. In the 1970's and 1980's, the focus was on motivation, in which the manager maximized the attainment of top management goals, which led to relevance in terms of whether the correct data were being gathered (Horngren, 1989).

Another area of research in management accounting is agency theory, the relationship between management and subordinates. "Researchers in accounting are trying to relate agency theory to the design of management control systems" (Horngren, 1989, p.29). The object of designing a management control system in which subordinates are rewarded for aligning their goals with management's goals. This entailed examining risk, sharing of risk and risk congruence, between subordinates and management. "Many agency researchers believe that the design of management control systems is largely a problem of evaluating performance and issuing rewards so that risks are shared among managers and owners in an optimal way" (Horngren, 1989, p.29).

In 1959, the Ford Foundation and Carnegie Corporation each issued reports on business education. Both reports were critical of the current business curriculum and recommended changes towards greater analytical work. The Ford Foundation report, "re-oriented business school research from descriptive and thought-provoking conceptual work toward empirical, analytical, and experimental research methods, with much emphasis on such outside disciplines as economics and psychology" (Maher, 2000, p.337).

During the 1960's and 1970's, there was increased emphasis on mathematical modeling and operations research by management accounting research literature. The

purpose was to make business education more scientific, and since mathematics is the language of science, there was an increased emphasis on involving mathematics in management accounting research (Boer, 2000). The number of articles published that included some type of mathematical modeling increased from 11% in the 1950's to 74% in the 1970's (Maher, 1995). During the 1970's mathematical concepts such as linear programming, inventory modeling, and Bayesian decision making filtered into a few textbooks (Boer, 2000). However, very few, if any, schools at the undergraduate level included mathematical topics, operations research, or decision analysis topics in the accounting curriculum. And only a few graduate schools of accounting included such topics in their curriculum (Maher, 2000).

Many schools offered a single semester course in Management Accounting, required for all business majors, with a follow-up single semester course cost on cost accounting required for accounting majors. The American Association Report of the Committee on Courses in Managerial Accounting (1972) stated, " the accounting student has been exposed, in an oversimplified and procedural sense, to the managerial accounting area in his first accounting course followed by an expansion of techniques in a semester or more of cost accounting" (p.4). Brewer (2000) reflects a similar process. All business students (which includes accounting students) take a single semester managerial accounting course covering a variety of topics mostly geared towards manufacturing or production operations, with very little emphasis to service operations. The single cost accounting course provided a little more depth than the managerial accounting course. However, in general both courses did not provide significant depth of cost accounting material.

The Third Period – second “new wave” - of Management Accounting Education

The third wave of management accounting education started in 1984 with the publication of Kaplan’s (1984) *The Evolution of Management Accounting*. Kaplan’s theme is that all of cost and managerial accounting practices utilized for firms have been developed by 1925. Despite significant changes in the past 60 years in how firms are organized and managed, “there has been little innovation in the design and implementation of cost accounting and management control system” (Kaplan, 1984, p.390). As such, there has been little or no change in cost accounting or management accounting textbooks and curriculum. After publication of Kaplan’s (1984) article as well as Johnson and Kaplan (1987) *Relevance Lost: The Rise and Fall of Management Accounting*, there was an increased emphasis in research in management accounting.

In addition, the 1980’s signaled economic changes as “companies in the U.S. and other developed industrial nations faced increasing competition both from competitors in other industrialized countries and from emerging countries” (Maher, 2000, p.339). Several changes occurred during this period and are reflected in cost accounting and management accounting textbooks. These changes reflect new methods for gathering and presenting cost information to management. Firms implemented a number of new and innovative items such as activity based costing (ABC), economic value added (EVA), and balanced scorecard. These items were incorporated in management accounting textbooks.

Maher (2000) conducted an analysis in the changes that occurred in Horngren’s textbook, *Cost Accounting: A Managerial Emphasis*, from the 5th edition (1982) to the 10th edition (2000), an 18 year period. The changes included greater emphasis on ABC,

backflush costing, customer profitability analysis, strategic profitability analysis, balanced scorecard and other non-financial measures. These subject items were included in the 2000 10th edition and not included in the 1982 5th edition.

Boer (2000) performed a similar analysis concerning Kaplan's *Advanced Management Accounting* textbook. Boer (2000) compared the content of the 1982 1st edition with the 1998 3rd edition. The 1998 3rd edition had significant number of management decision topics such as activity based costing/activity based management, balanced scorecard, EVA, measuring customer process, and several non-financial measures. The 3rd edition reflected research in innovations for new systems that collected and provided information to assist managers in managing the organization.

Boer (2000) stated that researchers observed and studied the business practices that were occurring in firms. At conferences, "researchers discussed how to use cases to do research in management accounting, and a number of researchers began studying accounting phenomena using data from real companies" (Boer, 2000, p.323).

Boer (2000) believes that the future of management accounting education will involve greater emphasis on information systems (how systems are developed, data are collected, and how systems interface with each other), computer technology, database management (from a functional viewpoint), greater emphasis on cash management, greater emphasis on service organizations, and the ability to present information to management in a useful manner. Computer and software packages allow computations of items that were previously done by accountants. The earliest programs were used for task control functions such as replenishment of inventory items, production scheduling, and analysis of routine credit approval (Anthony, 2000). However, with sophisticated

decision support systems “that have well-defined decision rules governing a significant part of the analysis” (Anthony, 2000, p.17), globalization, and computer technology, has freed management accountants from performing routine task orientated functions. As such, there will be greater emphasis on management accountants becoming business consultants to assist management to “formulate problem definition, identify relevant data for analyzing problems, suggest sources of data from various company systems to help with the analysis, and locate external data sources for the things such as commodity prices and competitor sales (Boer, 2000, p.325). This will require greater emphasis in the curriculum towards information systems and understanding how non-accounting information systems interface and compliment accounting systems.

Database management and data mining are increasingly being utilized by a number of organizations. “These systems enable companies to capture data at a micro level for later reassembly into blocks of usable information” (Boer, 2000, p.327). Students will need to understand how databases are developed and how to generate information from databases. “Management accounting teachers should spend more time helping students think about what data to capture for each transaction” (Boer, 2000, p.327).

Boer (2000) has developed an exercise for his students in which students work with a “numberless accounting problem.” “These exercises require students to define what they need for solving a problem instead of trying to take data from a printed report and figuring out how to use it” (Boer, 2000, p.328). The exercise requires students to think of the type of data needed to solve problems. Boer (2000) thinks this assists students in thinking of what type of data should be collected, how it should be collected, and how it should be extracted from the database and presented to management. The exercise

“requires students to define what they need for solving a problem instead of trying to take data from a printed report and figuring out how to use it” (Boer, 2000, p.328).

Another area that Boer (2000) believes will be the future in management accounting education is greater emphasis on cash management. Innovation is occurring at a rapid pace. The thought process among many businesses is to get the product quickly into the marketplace, gather feedback from customers, and quickly make changes to the product prior to the competition making improvements. This process means that there is less emphasis on reducing product costs (as products have a shorter duration in the marketplace) and greater emphasis on cash management. When an organization has a stable product line, it can focus on cost reduction and cost leadership. However, an innovative learning based organization quickly adapts to changes in the marketplace. Due to a shorter life cycle of products, firms cannot be a long-term cost leader. In addition, in a competitive marketplace, firms will have to decide which products and customers to keep and which products and customers to add and subtract. These decisions affect the long-term prospects of a firm. “The appropriate form of analysis for these decisions is a cash analysis that takes into account all increment future cash outflows and inflows associated with alternative strategies” (Boer, 2000, p.329). This will entail management accountants having a greater involvement in the strategic direction of the firm. In addition, management accounting education would have a greater emphasis on capital budgeting concepts, techniques, and alternative strategies.

Also, management accounting education needs to have a greater emphasis on service organizations. Many management accounting textbooks emphasized concepts and techniques associated with a manufacturing environment. This includes items such as job

costing, product costing, variance analysis, prime costs, conversion costs, cost of goods manufactured, allocation of overhead costs, and joint costs. However, the economy has shifted from an industrial based economy to a service based economy, and in some parts, an information based economy. Management accounting textbooks that deal with service industries take manufacturing concepts and apply them to the service industry. Boer (2000) believes that management accounting textbooks must be organized from a manufacturing bias to a service industry bias, to focus on the problems and issues facing service industry managers. As more management accounting graduates enter into service industries and information technology firms, greater emphasis needs to be placed on these types of firms and issues they encounter in management accounting textbooks, or the students will be irrelevant to the companies that hire them.

Finally, students will need to learn how to present information in a useful manner to management. This involves understanding useful user interfaces with information systems as well as the principles of graphic representation of data. Management accounting students will need to learn how management will utilize the data and how to present information to management in a useful format. “Arranging cost data into different groupings so that managers can make alternate cost summaries for different decisions” (Boer, 2000, p.328).

Common Body of Knowledge

The Beemer Report proposed a common body of knowledge (CBK) for accounting professionals. However, the CBK was skewed towards accounting professionals in public accounting. As management accounting became more professional, there have been a

number of articles during the “second period” concerning what constitutes a CBK for management accounting. According to Rubin (1983):

Management accounting is, in fact, the only occupation subject to laws that require its work to be certified by another occupation (public accounting) before such work can be used by the public. ... The management accountants are the authors and the CPAs are the proofreaders. (p.70)

There have been a number of surveys of management accountants in industry in terms of determining a CBK. The importance of gathering information from industry is that industry understands what educational requirements are needed for entry-level accountants.

Deakin and Summers (1975) developed a list of 39 topics from indexes and table of contents of the leading cost and managerial accounting textbooks, as well as discussions with management accounting practitioners. A questionnaire was sent to 250 individuals who were selected at random:

... from among the lists corporate-affiliated members of the Texas Society of CPA's, accountants practicing in MAS in large CPA firms, Texas members of the AAA listing corporate addresses, Beta Alpha Psi alumni of the University of Texas at Austin, and members of Texas FEI chapters. (Deakin and Summers, 1975, p.380)

There were 168 responses to the questionnaire for a response rate of 67%. The questionnaire was restricted to the State of Texas only. The respondents ranked the 39 topics in order of relative importance in terms of the respondent's work experience. The results of the survey allowed the 39 topics to be categorized in five group rankings. The first ranked group concerned two topics: performance evaluation and responsibility

accounting. The second ranked group concerned 15 topics and related to organizational structure and systems such as internal control, profit planning, and system related topics. The third ranked group concerned three topics and were related to information systems. The fourth ranked group concerned 16 topics and were related to cost accounting and quantitative analysis. The fifth ranked group concerned three specialized topics: learning effect, joint cost analysis, and environmental control. The study revealed that the most important topics considered by management practitioners are the traditional monitoring aspects of managerial accounting. This entails the organizational structure and the systems (design, collection, and reporting of information) in place to collect data and monitor the operations of the firm and evaluate the performance of management. The least important topics were topics that required specific knowledge such as environmental control.

Five years later in 1980, Van Zante conducted a similar study among CMA's – both management accounting practitioners and educators. Van Zante (1980) mailed a questionnaire to 270 management accountants and 130 educators. Van Zante (1980) received a response from 150 (55.6%) management accounting practitioners and 72 (55.4%) educators, for a total response of 222, 55.5% response rate. The questionnaire asked the respondents to rate the importance of 28 topics gleaned from management accounting textbooks and finance textbooks. The results of the survey revealed that the top topics were performance evaluation (variance analysis and cost behavior), systems, cash management, preparation and analysis of financial statements, and capital budgeting. The results validated the findings of Deakin and Summers (1975) while

providing additional topics, especially in the area of finance, to be included in a common body of knowledge for management accounting.

In 1987, Lander and Reinstein conducted a study whose purpose was “to identify a CBK for management accounting” (p.264). Lander and Reinstein reviewed the 50 management accounting topics developed by Flaherty (1979), the 28 management accounting topics developed by Van Zante (1980), as well as topics reflected in leading management accounting textbooks and developed a list of 28 management accounting topics.

It should be noted that many management accounting textbooks reviewed by Lander and Reinstein in 1987 were also listed in management accounting textbooks reviewed by Deakin and Summers in 1975. Thus, many of the 28 management accounting topics developed by Lander and Reinstein were similar to the topics listed in the Deakin and Summers (1975) survey as well as the Van Zante (1980) survey. This provides continuity in management accounting subjects that are reviewed and provides a basis for comparison of the studies. While the purpose of this section is to show the historical perspectives of CBK, an area of further research would be the comparison of these studies and the associated changes that occurred.

Lander and Reinstein (1987) employed a two step approach in conducting their study. The first step utilizing the list of 28 management accounting topics conducted a number of interviews with “forty-one management accountants from 11 Fortune 100 companies” (Lander & Reinstein, 1987, p.266) in determining management accounting objectives (MAO) and specific knowledge items (SKI). Management accounting objectives are subjects that should be taught in a management accounting curriculum. The specific

knowledge items are subunits of the MAOs and support the MAOs. The interviews were designed to gather:

(a) a general description of the interviewee's area of responsibility, (b) the MAOs that the interviewee was responsible for, (c) the SKIs necessary to master the MAO mentioned, and (d) predictions of possible changes in management accounting objectives – and to suggest how accounting students should prepare for these changes. (Lander and Reinstein, 1987, p.267)

These interviews produced 13 MAOs and 168 SKIs. The second step involved a questionnaire concerning the 13 MAOs and 168 SKIs that were mailed to 1,000 members of the IMA (Vice-Presidents of Finance, Controllers, Assistant Controllers, and Accounting Clerks) with 521 replies for a response rate of 52%.

The 168 SKIs developed by Lander and Reinstein were similar to the 28 management accounting topics developed by Van Zante (1980) in his study and the 39 topics utilized by Deakin and Summers (1975) in their study. Both studies were designed to determine the relative importance of management accounting topics for management curricula. Lander and Reinstein (1987) developed a table comparing their MAOs and SKIs with those developed by Van Zante (1980) and Deakin and Summers (1975). Appendix A is an expansion of this table with the addition of the CMA content specification. This provides a relationship between what is required for the CMA exam and a CBK in management accounting.

The results of Lander and Reinstein (1987) study indicate great importance in the areas of internal control and accounting systems, standard costing and product costing, financial analysis, capital budgeting, and oral communication.

In 1988, Robinson and Barrett conducted a survey concerning “topical coverage of collegiate managerial accounting curricula” (Robinson & Barrett, 1988, p.49). Robinson and Barrett utilized Flaherty’s 50 management accounting topics and added one additional topic: linear programming. A survey was sent to 396 schools that are members of the AAA Management Accounting Section. Of the 396 schools, 28 (7%) had Association to Advance Schools of Collegiate Business (AACSB) accounting accreditation, 210 (53%) had AACSB general accreditation, and 158 (40%) were not AACSB accredited. Of the 396 surveys sent, 151 responded for a 38% response rate.

The survey asked respondents “to list all managerial accounting courses offered at their schools, the required or elective status of each course in each of the three degree programs (*undergraduate, Master in Accounting, and MBA with a concentration in accounting*), and whether each of the 51 topics ... is taught in each course” (Robinson & Barrett, 1988, p.50).

The results of the survey reflected that the accredited programs cover 28 of the 51 topics in required managerial accounting courses while 25 topics are covered in required management accounting courses for non-accredited programs. The results also reflect that there was a statistical significance between accredited and non-accredited programs in the coverage of four topics: sensitivity analysis, corporate planning, transfer pricing, and residual income. These four topics were covered in greater depth in accredited programs than in non-accredited programs. The results also revealed that in both accredited and non-accredited programs the emphasis is on product costing, cost control, short-range planning, and performance evaluation topics.

History of the Institute of Management Accountants

The American Institute of Accountants (AIA) was primarily concerned with accounting in terms of financial statement audits. At the Institute's 1919 annual meeting, there was a proposal to have a cost accounting section. However, "the proposal was rejected, on the ground that the primary purpose of the Institute was to serve practicing public accountants" (Casey, 1969, p.311). As such, there was no national organization for cost accounting. On October 14, 1919, in Buffalo, New York, roughly a year after the end of World War I, a new organization was formed, the National Association of Cost Accountants (NACA). The idea for the organization was discussed among a number of people for several years. The first president and chairman of the meeting was Major Jerome Lee Nicholson.

Jerome Lee Nicholson, prior to World War I, had an idea of a national organization for cost accountants. There was a national organization for public accountants and auditors but no such organization existed for cost accountants. During World War I, the federal government issued a number of cost-plus-cost type contracts. This type of contract allowed government contractors to bill the government their costs prior to delivery of goods and services. This meant that government contractors needed to understand their costs in order to properly bill the federal government.

The federal government organized a Division of Cost Accounting within the Bureau of Foreign and Domestic Commerce. In 1917, Jerome Lee Nicholson became the head of the Division of Cost Accounting. During the war there were disagreements between government cost accountants and government contractors of what the goods

manufactured actually cost. During the war Jerome Lee Nicholson earned the rank of Major; after the war he became known as Major J. Lee Nicholson.

Major J. Lee Nicholson sent a letter dated September 16, 1979 to a number of individuals in order to have a conference in Buffalo, New York to form the National Association of Cost Accountants (NACA). The main purpose for forming the NACA:

... spreading the science of correct cost accounting among businessmen of the country – not for the object of any personal gain on the part of any particular member – but on the broad platform of general good, and advancement of American interests. If this policy is followed, not only the business organizations will be benefited, but also the men who are employed by such organizations in connection with cost accounting. (Meyers & Koval, 1994, p.1)

Major Nicholson's address to the members of the NACA stated that the purpose of the organization is "to advance the science of cost accounting through such avenues as research, discussion, acquisition, and diffusion of cost accounting knowledge" (Meyers & Koval, 1994, p.6). In addition, Major Nicholson reflected in his address on the differences between a cost accountant and an auditor. Major Nicholson believed that a cost accountant was someone who had inner knowledge of the business and was able to utilize this knowledge in order to assist the business in its future endeavors. The auditor was concerned about the recording of past history of the firm. While 37 individuals attended the October meeting, the original charter reflected 97 members. Many of the founders of NACA were well known such as Arthur Andersen , founder of Arthur Andersen & Company, and William Lybrand and Robert Montgomery, founders of Lybrand, Ross Brothers & Montgomery. Also, there were a number of men from various

firms such as General Electric, DeLaval Steam Turbine Company, Cutler-Hammer Company, Westinghouse Air Brake Company, and many others. One charter member was a woman, Lena Mendelsohn, a CPA who practiced in Boston. And at least 20 charter members were authors with 123 articles to their credit (Meyers & Koval, 1994).

The first secretary of NACA, Stuart “Doc” McLeod led the effort towards one of the objectives of the association, accounting education. Stuart McLeod was a former newspaperman and he started the *Bulletin Services*, a monthly NACA publication. This publication provided articles on current and new ideas in management accounting. In addition, being a national magazine allowed ideas and information to flow between companies within an industry as well as between various industries. Stuart McLeod, upon the death of he and his wife, provided a corpus of \$330,000 which established a Memorial Educational Scholarship Fund. The Fund’s purpose is to provide annual scholarships to individuals pursuing a career in management accounting. The scholarship amounts range from \$1,000 to \$2,500 per award (Meyers & Koval, 1994). When the Association built a new headquarters building, the library was named the Stuart Cameron McLeod Library.

Membership in the organization expanded quickly. From an initial charter of 97 members in 1919, there were 1,971 members in 1920 and over 94,500 members in 1990.

After the initial growth in membership, the national organization realized it would need chapters as a hierarchical structure to manage the organization and meetings.

“Chapters would provide affiliation with a local group and make monthly membership meetings possible (Meyers and Koval, 1994, p.59). Major Nicholson, in his opening address to the charter members thought that “... Chapters of the organization will be

established in the principal cities of the country, where monthly discussions and lectures on cost accounting may be arranged” (Meyers & Koval, 1994, p.59). As such, at every chapter meeting a topical subject matter concerning cost accounting or an item in connection to cost accounting was to be discussed. However, once chapters were established it was determined that each chapter was organized differently. And each chapter, while having an object of promoting cost accounting, did not always have the same objectives as the national organizations. In 1920, a “Chapter Organization” book was published in order to organize chapters and organize chapter meetings. The booklet described the purpose of the chapter as “better acquaintance, exchange of ideas, discussion of practical problems, and aiding the national organization” (Meyers & Koval, 1994, p.60). The booklet described rules, process and procedures for the formation of a chapter as well as for conducting a chapter.

In 1923, Charles Stevenson, director in charge of chapters (president of NACA in 1927-1928) “proposed a competition that would award points for each activity, such as program, manuscripts, membership growth, administration, and so on” (Meyers & Koval, 1994, p.63). The reporting requirements from the competition would inform national headquarters of the activities that the chapters were performing as well as which chapters needed assistance. The first trophy to the chapter that earned the most points was known as the Stevenson trophy, in honor of Charles Stevenson. However, in the 1965-1966 year a second trophy – Warner Trophy – was established for chapters whose membership was less than 125 people. The trophy was named after Philip Warner, national treasurer from 1933 to 1956 and national president from 1956 - 1957. The following table reflects the growth in membership and chapters in the NACA.

Table 4

Membership in the National Association of Cost Accountants, 1920 – 1990

<u>Year</u>	<u>Membership</u>	<u>Chapters</u>
1920	1,971	16
1930	6,217	41
1940	9,207	69
1950	28,535	105
1960	49,156	150
1970	69,820	254
1980	89,230	327
<u>1990</u>	<u>94,514</u>	<u>316</u>

Source: Meyers & Koval (1994, p.25, 62).

Note: IMA stopped publishing membership data in 1993 for proprietary reasons.

One of the reasons for starting the Association was to provide educational opportunities to the members:

The thrust of the educational activities has been two-fold: to develop and individual's (1) technical skills and (2) leadership skills. The various courses, seminars, conferences, chapter meetings, and the like develop technical skills, and the volunteer organization provides the opportunity to develop leadership skills. (Meyers & Koval, 1994, p.91)

Educational opportunities expanded with the development of the Stuart Cameron McLeod Library which has over 10,000 titles. The Association publishes a monthly magazine informing the members of issues in cost accounting as well as new ideas in cost

accounting and other information useful to the membership. The monthly magazine, *Bulletin Services*, in 1965 changed its name to *Management Accounting*, to reflect emphasis on the decision making aspects of cost accounting. In 1999, the name changed to *Strategic Finance*, to reflect the expanding role and responsibilities of management accountants in providing strategic advice to top management on business decisions (Stewart, 1999).

Another area of educational opportunities is research publications. In 1920, the Association hired its first director of research, Gould Harris. The Association has published over 2000 research studies in accounting as well as over 6,000 articles. In 1986, the Association's Executive Committee approved \$1 million, over a four year period, for a new research effort called Bold Step. "The primary objective of the Bold Step was to provide real-world solutions to the problems posted by new technologies and trends in business and industry" (Meyers & Koval, 1994, p.89). This program was designed to produce research on the cutting edge of technology that could be applied to the workplace. The last book in the Bold Step program, *Implementing Activity-Based Cost Management: Moving from Analysis to Action*, won the 1993 AAA Notable Contribution to Accounting Literature Award.

In 1969, the Executive Committee in expanding its research ability created the Management Accounting Practices (MAP), which served as a senior technical committee. "This committee was charged with the task of promulgating statements on management accounting that reflect the views of the IMA" (Clinton, 1999, p.1). The committee including twelve individuals from industry, public accounting, and academia. The committee commented on proposed changes from the Accounting Principles Board

(APB) as well as its successor, the Financial Accounting Standards Board (FASB). In 1972, MAP started issuing Statement on Management Accounting (SMA). The purpose of issuing SMAs are:

(1) to express the official position of the IMA on accounting and business reporting issues raised by other standard-setting groups, and (2) to provide broad guidance to IMA members and to the wider business community on management accounting concepts, policies, and practices. (Clinton, 1999, p.1)

The first SMA issued was *Concepts for Contract Costing*. A subcommittee concerning a particular SMA topic is developed to conduct research on the topic. Advisory panels may be formed to assist the subcommittee. The subcommittee is guided by a framework that considers five categories; 1) objectives, 2) terminology, 3) concepts, 4) practices and techniques, and 5) management of accounting activities (Clinton, 1999). A draft exposure is developed and reviewed by the advisory panel as well as subcommittee. After the subcommittee review and modifications are made, the exposure draft is published in *Strategic Finance*, with an appropriate comment by the membership and the public. After further modifications and a possible second comment period, the draft SMA is forwarded to the MAP Committee. The MAP Committee has one of three choices; 1) approve the draft SMA, disapprove the draft SMA, or 3) modify the draft SMA and approve later. The draft SMA needs two-thirds approval of the MAP Committee to be considered a final SMA. There are 38 SMA's in six categories. The six categories are: 1) leadership strategies and ethics, 2) technology enablement, 3) strategic cost management, 4) business performance management, 5) finance, governance, risk and confidence, and 6) practices of management accounting. Members of the MAP

Committee have testified to a number of standard setting bodies, regulatory bodies, as well as Congress. The MAP Committee is recognized by the SEC, FASB, and the Cost Accounting Standards Board (CASB).

Ethics has played a role in the Association and the Committee of Ethics was one of the original committees formed when the Association was formed. In 1924, at a Board of Directors meeting, there was considerable discussion concerning the development of a code of ethics. However, it was felt that ethical standards were taken for granted and the management accountant was the “watch dog of the treasury” (Meyers & Koval, 1994, p.127), therefore there was no codification of ethics at that time. In 1978, Robert Sweeney, Chairman of the Board of Directors, requested a research report on ethics in support of ethics questions that appear on the CMA exam. In 1981, C. Mike Merz and David Groebner issued *Towards a Code of Ethics for Management Accountants*, which recommend a task force be organized to prepare a code of ethics for the Association. A task force was formed, a code of ethics was developed and in June 1983 the *Standards of Ethical Conduct for Management Accountants* was issued. It is not uncommon to see the *Standards of Ethical Conduct* as part of the ethics portion of management accounting textbooks. In addition, ethics is part of the CMA exam, with the *Standards of Ethical Conduct* utilized as the basis for the CMA questions.

As the field of cost accounting changed so did the Association. In 1957, NACA dropped the word “Cost” from its name and became known as the National Association of Accountants (NAA). This change reflected the shift from purely a cost accounting organization to an accounting organization with greater emphasis on management. In 1991, the name changed to the Institute of Management Accountants (IMA). This change

reflected the expanding nature of management accounting, as well as the co-mingling of the corporate finance and management accounting skill set. Yet with all of the name changes, the best description of the Association was stated by Stuart “Doc” McLeod in the 1938 annual report:

Our Association is somewhat unique. We are not a trade association nor are we, strictly speaking, a professional society. The National Association of Cost Accountants might be described as a group of men who have bound themselves together in close association for the purpose of improving their knowledge of their chosen profession through the exchange of ideas. (Meyers & Koval, 1994, p.134)

History of the Certified Management Accountant Program

Increased government regulation, competition in the marketplace, and investor disclosure requirements levied an increased requirement in corporate accounting for professionalism. According to Vatter (1950), “the major function served by both public and managerial accountants is to use their independent judgment with complete freedom; thus they may observe and evaluate objectively the fortunes and the results of enterprise operations” (p.8).

In 1965, NAA President Joseph L. Brumit appointed a Long-Range Objectives Committee to look at the future of the Association in five to ten years. Former NAA President I. Wayne Keller (1953-1954) chaired the committee. The Committee issued its report, which was unanimously approved by the NAA Executive Committee in 1968. In terms of education, the Committee recommended the establishment of a comprehensive

examination in business education. The Committee's recommendation for the qualifications to sit for the examination were:

- (a) the successful completion of examinations in a number of required and elective courses as established by the Association from time to time and also
- (b) a determined number of years of business and/or college level teaching experience. Under no circumstances shall experience be the sole basis upon which the title is awarded. (Meyers & Koval, 1994, p.101)

The Committee also recommended that a Credentials Committee be established to determine an individual's qualifications to sit for the comprehensive examination. And that a Board of Examiners be established to have full responsibility for determining the content of the comprehensive examination. These recommendations were far reaching as the Committee was recommending that a national examination covering various subjects in management accounting be established. This examination, similar in concept to the CPA examination was an alternative to the CPA examination.

In March 1970, the Executive Committee approved a recommendation by the Education and Planning Committee that an ad hoc committee be established "on the development and timetable leading to the recognition of educational of members" (Meyers & Koval, 1994, p.99). Over a year later, May 14, 1971, the ad hoc committee presented its report to the NAA Executive Committee, which approved the report. President Julius Underwood appointed a task force, which was chaired by Robert Beyer (managing partner of Touche, Ross, Bailey, and Smart and President of the IMA in 1972) and was charged with establishing the framework and structure for national comprehensive examination. The task force was charged with completing its efforts by

late 1971 so that the new structure and examination could start in 1972. In January 1972, the Institute of Management Accounting (IMA) was formed with the Certificate in Management Accounting (CMA) program established. The IMA was charged with managing the certificate program (not to be confused with the IMA that superceded the NAA in 1991). An eight member Board of Regents was established to manage the CMA program. The Board's first chairman was Herbert Knortz, senior vice-president and controller of International Telephone & Telegraph Corporation. Dr. James Bulloch, from the University of Michigan Graduate School of Business, became the first managing director, in charge of the staff.

The first CMA exam was given December 6, 7, and 8, 1972 across 22 locations. Five hundred and twenty people registered for the first exam with 410 individuals taking the exam, and 61 individuals passed all five parts of the exam. In June 1973, exam certificates were issued to 54 people as seven people did not meet the experience requirement. The seven did receive their CMA certificates upon completing the experience requirement.

Krogstad and Harris (1974) conducted an analysis of the first two CMA examinations: the 1972 and 1973 CMA exams. Harris and Krogstad (1976) conducted an analysis of the first four CMA exams. The purpose of both studies was to determine the relative emphasis on different subjects as well as what academic preparation was needed to pass the CMA exam. Krogstad and Harris (1974) and Harris and Krogstad (1976) reviewed the content of the CMA exams and developed ten topic areas. "These subject areas were identified by integrating typical business administration curriculum formats and course descriptions with the reading list and topical-coverage outline circulated by

the NAA” (Krogstad & Harris, 1974, p.21). The content analysis from both studies revealed that 71% of the examination concerned four topical areas; managerial accounting, financial reporting, business finance, and economics (macroeconomics and microeconomics). Managerial accounting accounted for 38% of the examination. And the top four topics within the managerial accounting area were relevant cost analysis, budgeting, standard cost system (including variance analysis), and direct and absorption costing.

Kogstad and Harris (1974) asked the faculty at a large mid-western university to review the ten topical areas, within their area of expertise, and review the university course catalog to “determine the courses which would have appropriately prepared a CMA candidate” (Kogstad & Harris, 1974, p.23). The findings were that a traditional accounting curriculum, with greater emphasis on managerial accounting, finance, economics, statistics (quantitative methods) and management should provide enough preparation for the CMA exam. Kogstad and Harris (1974) analysis also confirmed that a four year degree is sufficient to pass the CMA exam. This re-enforced the notion among many management accountants that a 150-hours is not necessary to prepare an accounting student for the CMA exam or to enter the workforce.

Initially the exam was given once a year. However, in 1977 the Board of Regents offered the exam twice a year, June and December. This was due to the increased popularity of the program, to increase the number of candidates through the program, and reduce the administrative burden of grading all the exams at one time. On October 27, 1983, the Board of Regents changed the designation from the Certificate in Management Accounting to Certified Management Accountant, with an effective date of April 30,

1986. The Board wanted to make the program more professional. Utilizing a similar name sequence as the CPA program, allowed the CMA – Certified Management Accountant – to be more recognizable in the marketplace. In 1989, the Board of Regents made membership in the NAA a requirement to enter the CMA program. This was a follow-up to the name change; the emphasis was on maintaining and enhancing the CMA as a professional designation. This provided an avenue for CMA's to network among themselves, earn continuous professional education hours (CMAs are required to earn 30 hours of CPE each year to maintain their CMA certificate), and have access to other educational products and professional journals. One of the elements of the CMA program was to increase an individual's knowledge. The Board felt that there was an advantage to CMA's by dovetailing to the existing educational structure at the NAA.

In 1991, corresponding with NAA's name change to IMA, there were three major changes to the CMA program. The first change was the name change of the organization managing the CMA program, from the Institute of Management Accounting, to the Institute of Certified Management Accountants (ICMA). This change aligned the purpose of the organization more closely to the CMA program. The second change was the length of the exam, from five parts over 2.5 days to four parts over two days, each part being four hours long. The third change was that CPA's were exempted from taking Part 2 (Financial Accounting and Reporting) of the exam. The Board of Regents felt that someone successfully completing the CPA exam would have the requisite knowledge in financial accounting and reporting. (Van Zante, 2005).

In 1997, the exam became computerized and as such became 100 percent multiple choice questions. The time was reduced for each of the four parts from four hours to three

hours. Candidates received almost instant feedback in terms of how well they performed on each of the four parts of the exam. Since the exam was computerized, candidates were allowed to take the exam anytime during the year, when testing stations were open.

In 2004, the content and format of the exam changed. The topics in the revised exam “are grouped according to the skills and abilities that a managerial finance or accounting professional uses in analyzing, managing, and evaluating business solutions rather than reflecting the academic silos in which skills are initially learned” (Van Zante, 2005, p.24). Candidates who are a CPA are exempted from part one, as this part reflected financial reporting and analysis. In addition, candidates are required to complete parts one through three before starting part four. Parts one through three were still a 100% multiple choice questions. The revised part four “contains open-ended essays and problems that facilitate more effective testing of higher abilities of evaluation, critical thinking, and judgment” (Van Zante, 2005, p.24). Topics in parts one through three can appear in part four as well as other topics such as organizational management, ethics, behavior issues, and communications. The purpose of having part four become all essay was to strengthen a CMA’s ability to communicate in an effective manner. A written exam allows a candidate to demonstrate his knowledge to synthesize and analyze information and communicate the results. In addition, the Board was responding to several studies that stated there should be greater communication skills among accountants (Albrecht & Sack, 2000; Siegel, 2000). Also, the schedule of taking the exam changed. While parts one through three could be taken anytime during the year, part four (which could only be taken after completion of parts one through three) could only be taken four months of the year; February, May, August, and November.

In 2009, the scheduling of the exam changed to ensure candidates were fully prepared to take and complete part four and to complete the CMA program in sufficient time. Parts one through three could only be taken six times a year; January, February, May, June, September, and October. Part four could only be taken three times a year; April, August, and December. No parts are available to candidates during the months of March, July, and November.

In 1995, 8,675 candidates attempted the exam and slightly under 1,500 CMA certificates were issued. Reider and Peterson (1997) conducted a survey of the new CMAs “to identify their reasons for seeking the credential, determine motivating factors or rewards for earning the CMA, investigate their use of and recommendations for study materials, and gather their advice for prospective exam takers” (Reider & Peterson, 1997, p.39). Reider and Peterson (1997) surveyed 500 randomly selected CMA’s, had 276 responses for a 55.2% response rate. The survey revealed that 41% of the new CMA’s had master’s degrees, with 65% of the CMA’s having an undergraduate degree in accounting. The average age of the CMA’s was 35.3 years, having an average of 8.3 years working in accounting, providing substantial work experience prior to taking the exam. In addition, the candidates spent an average of 12.7 hours per week for 10.7 weeks, a total of 136 hours, studying for the CMA exam. “A majority of respondents believe that the greatest future benefit of the CMA credential will be increased job mobility or marketability” (Reider and Peterson, 1997, p.40).

In 2004, Kapoor and Islam (2005) studied the university transcripts of 270 candidates who took the CMA examination in June 1995. Half of the students were first time candidates and the other half were repeat candidates. The conclusion of the study was

that there is a significant statistical relationship between a candidate's grade point average and the number of credit hours completed in general education courses and performance on the CMA exam. Kapoor and Islam (2005) also determined that the increased number of general education business courses had a positive impact on a candidate's performance on the CMA exam. Kapoor, Islam, and Mustafa (2006) conducted a study of 691 candidates who took the CMA exam; 536 first time candidates and 155 repeat candidates. Kapoor, Islam, and Mustafa (2006) utilized the same methodology as Kapoor and Islam (2005) in reviewing the university transcripts of the 691 CMA candidates. The conclusion of this study is that the ability of candidates to pass the exam in "a single attempt is positively and significantly related to their GPA in accounting courses" and "as well as their high achievement as reflected by their GPA in management sciences and business courses" (Kapoor, Islam, & Mustafa, 2006, p.117).

The popularity of the CMA program has increased significantly since its initial debut in 1972. "The CMA reflects an increase in the stature and maturity in management accounting" (Previts & Merino, 1998, p.413). The following table reflects the growth of the CMA program.

Table 5

Certified Management Accountant Activity, 1973 – 2007

Year	Number of exam Participants	Total number of CMAs
1973	410	61
1975	1,356	271
1980*	2,734	1,929
1985	4,961	5,403
1990	3,391	9,399
1995	6,775	16,137
2000**	4,358	22,840
2005***	6,353	26,914
2007	5,921	28,775

Source: Meyers & Koval (1994, p.102) and CMA Activity Years Spreadsheet by Dennis Whitney

* Beginning June 1978, the exam was given twice a year.

** Beginning 1997, all four parts of the exam became 100% computerized and online

*** Beginning 2004, Part 4 of the exam became essay.

While the number of exam takers decreased during the recession years of 1990 and 2000, there has been an increase in the total number of CMA's as well as CMA participants. An excellent description of the success of the program is by Kapoor, Islam, and Mustafa (2006), who stated, "Certified management accountants are strategic financial management professionals who combine accounting expertise with professional

management skills to provide leadership, innovation, and integration perspective to organizational decision-making” (p.113).

CHAPTER THREE: THE METHODOLOGY

Introduction

DePasquale (1985) studied the relationship between the content of the CMA and subjects covered in an undergraduate accounting curriculum. Dr. DePasquale was Chairman of the Business Administration Department at Saint Vincent College, Latrobe, Pennsylvania. In 1985, Dr. DePasquale utilizing *CMA Examination Review* by Irvin N. Gleim and Dale L. Flesher, compared the content for the CMA exam to the undergraduate accounting curriculum at Saint Vincent College. DePasquale (1985) utilized only required courses, not electives, in reviewing the accounting curriculum at Saint Vincent College. The results of DePasquale (1985) were:

- Approximately one-half of the exam test topics typically are found in the three areas of study: cost accounting, management, and intermediate accounting. A total of 49.4% of exam material comes from these three courses
- Virtually every course in the undergraduate accounting curriculum is represented on the CMA exam
- Some undergraduate courses contain material tested in more than one section of the exam. Not surprisingly, topics included in a typical cost accounting course are covered on every part of the exam
- Only 4.8% of the exam is not covered in an undergraduate accounting curriculum.
(DePasquale, 1985, p.46)

One of the limitations of the DePasquale (1985) study was utilizing only the accounting curriculum at one institution. In addition, the CMA exam in 1985 consisted of mostly essay questions and was five parts. By 2008, the CMA exam was four parts, of

which three parts are multiple choice questions, with the fourth part essay. The present CMA content specification consists of 91 SKI's and is 52 pages.

Research Design

This study utilizes a qualitative research design. “Qualitative research is a situated activity that locates the observer in the world” (Denzin & Lincoln, 2005, p.3). Qualitative research tends to represent inquiry from inside, that is an approach known as interpretivism (Crotty, 1998). This approach focuses on the “hows involved – the use of instructions, values, moral principles, and other accounts to construct a sense of coherence...” (Holstein & Gubrium, 2005, p.487). Conducting qualitative research allows an unbiased viewpoint of the collection of data and the interpretation of the data. In addition, grounded theory will be utilized. Grounded theory is a “set of flexible analytic guidelines that enable researchers to focus their data collection and to build inductive middle-range theories through successive levels of data analysis and conceptual development” (Charmaz, 2005, p.507). This allows an unbiased view to analyze the relationships between an educational institution’s accounting curriculum and the content specification for the CMA exam.

Data Collection Methods

In 1991, the IMA installed a new database reflecting various data characteristics including the education institution of the CMA candidate (Barber & Brackner, 1998). Prior to 1991, the IMA did not have a mechanized method of tracking a CMA candidate’s educational institution. While the IMA did not formerly name the database, for the purpose of this study, the database will be known as “the CMA Completer Database” to

reflect those CMA candidates that have completed and passed all parts of the CMA exam. The CMA completer database reflects the following data characteristics:

- CMA candidate's last name, first name, and middle initial
- The last educational institution listed by the CMA candidate
- The school code for the education institution
- The date (month, day, and year) that the CMA candidate completed part four of the CMA exam

The CMA completer database lists the year in which the candidate passed all four parts of the CMA exam. That is, if a CMA candidate passed three parts of the CMA exam in 2004, and passed the fourth part in 2005, then the CMA completer database would reflect 2005 as the year the CMA candidate passed the CMA exam. If a CMA candidate passed one part of the CMA exam in 2000, two parts in 2001, and the fourth part in 2002, then 2002 would reflect the year the CMA candidate passed the CMA exam.

Barber and Brackner (1998), Barber and Brackner (2000a), Barber and Brackner (2000b), and Barber (2004) were studies that determined the educational institutions that produced the most CMA candidates who passed all four parts of the CMA exam. Barber and Brackner (1998) study determined the top 19 educational institutions that had the largest number of CMA candidates that passed all four parts of the CMA exam, from 1991 through December 1995. Barber and Brackner (2000a) study reflected the top 20 educational institutions that had the largest number of CMA candidates that passed all four parts of the CMA exam from 1991 through June 1997. Barber and Brackner (2000b) study reflected the top 19 educational institutions that had the largest number of CMA candidates that passed all four parts of the CMA exam from 1991 through December

1999. Barber (2004) study showed the top 32 educational institutions that had the largest number of CMA candidates that passed all four parts of the CMA exam from 1991 through December 2002.

Appendix B reflects the top ten educational institutions in each of the Barker and Brackner studies and Barber studies.

Procedures of the Study

The methodology for this study is to utilize the CMA Completer database for years 2003, 2004, 2005, 2006, 2007, and 2008, a six year history. From the database, one can determine by year, the top ten educational institutions that produced the most CMA candidates that passed the CMA exam. As researched by Barber and Brackner, and further studies by Barker, it is not uncommon to have the same school appear across several years. From the top ten list (by year), determine the top five educational institutions that produced the most CMA candidates that passed the CMA exam from 2003 through 2008.

The accounting curriculum of the top five educational institutions was acquired through course catalogs and course descriptions from the educational institution through the Internet. The accounting curriculum of the top five schools was compared with the content specification for the CMA exam to determine what courses fulfill the topical areas of the content specifications for the CMA exam. After determining what specifications are covered by current accounting curriculum, it can be determined what specific content specifications of the CMA exam are not being covered in the accounting curriculum. This would determine a “gap” in terms of what changes need to be made in

an accounting curriculum in order to cover all aspects of the content specifications of the CMA exam, and to increase the number of CMA candidates passing the CMA exam.

The CMA exam is given to CMA candidates worldwide. While the content specifications of the CMA exam are available from the IMA's website, accounting course content is different world-wide, in different countries. A cost accounting course in the United States may not have the same content outside of the United States. In addition, the availability of course catalogs, and course catalogs in English, can be problematic. Also, the English dialect is different in countries outside the United States. This can cause difficulty in determining the meaning of a course listed in a course catalog of an educational institution outside the United States. As such, educational institutions outside the United States will not be utilized in this study.

CHAPTER FOUR: RESULTS AND FINDINGS

Restatement of the Purpose

The CMA exam covers a number of broad topics that are taught in colleges and universities such as economics, finance, management, information systems, statistics, and management accounting. The CMA exam requires individuals to master a body of knowledge in different skill levels of content coverage consisting of knowledge, comprehension, application, analysis, synthesis, and evaluation. This body of knowledge is divided into four topic areas which are also represented in the four parts of the CMA exam. The parts are: 1) Part I – business analysis (economics, internal controls, quantitative methods, and financial statement analysis), 2) Part II – management accounting and reporting (budget preparation, cost management, information management, performance measurement, and external financial reporting), 3) Part III – strategic management (strategic planning, marketing, corporate finance, decision analysis, and capital budgeting) and 4) Part IV – business application (organization management, communication, behavioral issues, and investment decisions). The CMA exam “is designed with a user orientation, i.e., to show how managers use accounting information for planning, controlling, decision making, and to make continuous improvements” (Tatikonda, 2004, 70). The CMA designation is “an objective measure of knowledge competence in the field of management accounting” (Tatikonda, 2004, 70). The purpose of this study is to see if there is a relationship between an educational institution’s accounting curriculum and the body of knowledge required for the CMA exam.

Presentation of Data

The CMA Completer Database was utilized in determining which educational institution produced the most CMA's for years 2003 through 2008. The scope of effort was restricted to those educational institutions operating in the United States and its territories. The CMA candidates who passed the CMA exam and were excluded from the study consisted of those candidates who passed the CFM exam, or who graduated from non-U.S. educational institutions, or who did not list an educational institution. Appendix C reflects the gross and net number of CMA candidates who passed the CMA exam as well as the corresponding number of educational institutions that were utilized in the study.

The number of CMA candidates who passed the CMA exam, from 2003 through 2008, were 7,129 CMA candidates. Of the 7,129 CMA candidates, 1,937 passed the CFM exam, 1,005 listed no educational institution, 1,224 graduated from a non-U.S. educational institution, for a total reduction of 4,166 (58%) CMA candidates from the study. This leaves 2,963 (42%) CMA candidates for determining the educational institutions that graduated the most CMA candidates who passed the CMA exam.

The next step was to determine, by each individual year, which educational institution graduated the most CMA candidates that passed the CMA exam. The number of educational institutions per year ranged from 271 to 372 educational institutions (Appendix C).

A composite list of educational institutions that graduated the most CMA candidates that passed the CMA exam, reflecting six years (from 2003 through 2008) was generated. From this composite list, five out of the top seven educational institutions were selected

for the study. The accounting curriculum for these five educational institutions would be compared to the CMA LOS (dated July 2008) to determine if there is a correlation between an educational institution accounting curriculum and the body of knowledge required for the CMA exam. The five educational institutions consisted of large, medium, and small educational institutions, from the east coast, west coast, and the mid-west.

The first educational institution is a large size mid-west educational institution that offers a bachelor's, master's and doctorate program in accounting. This educational institution graduated the most CMA candidates that passed the CMA exam from 2003 through 2008. The second educational institution is a small size mid-west educational institution that offers a bachelor's and master's program in accounting. This educational institution graduated the second most CMA candidates that passed the CMA exam from 2003 through 2008. The third educational institution is a large size east cost educational institution that offers a bachelor's, master's, and doctorate program in accounting. This educational institution tied as fourth that graduated the most CMA candidates that passed the CMA exam. The fourth educational institution is a large size west coast educational institution that offers a bachelor's, master's and doctorate program in accounting. This educational institution graduated the sixth for the most CMA candidates that passed the CMA exam. The fifth educational institution is a medium size mid-west educational institution that offers a bachelor's and master's program in accounting. This educational institution graduated the seventh for the most CMA candidates that passed the CMA exam.

Two educational institutions that were in the top seven educational institutions were not included in the study. One was an online educational institution that also has brick

and mortar campuses. This educational institution was not included as it was indeterminable if the students were taught solely online, at one of the brick and mortar campuses (and which campus), or taught in a hybrid manner (part online and part brick and mortar). In determining which educational institutions graduated the most CMA candidates that passed the CMA exam, a distinction was made if an educational institution had multiple campuses. Each campus was counted as a separate educational institution. The second educational institution was a large size mid-west educational institution that tied with a large east coast educational institution as graduating the fourth most CMA candidates that passed the CMA exam. This large size mid-western educational institution offers a bachelor's, master's and doctorate program in accounting. Since a large size mid-west educational institution was already included in the study, it would be redundant to include a second large size mid-western educational institution in the study. In addition, by not selecting another large size mid-western educational institution, it allowed flexibility in utilizing geographically dispersed educational institutions.

The five educational institutions have similar requirements for a bachelor's degree in accounting. Accounting students are required to have roughly half of their total credits to graduate in general education courses. This consists of various humanities, social science, language, science, computer technology, and basic mathematics. The remaining half of the courses consists of core (or foundation) business courses, elective business courses, core accounting courses, and elective accounting courses.

The educational institution curriculum for accounting students was compared to the CMA LOS to determine if the educational institution curriculum meets the requirements

of the CMA LOS. The curriculum was compared to the 4 parts, 19 sub-parts, and 91 sub-sub parts of the CMA LOS. Each of the parts, sub-parts, and sub-sub parts reflects a topical area that is covered on the CMA exam. Appendix D reflects the percentage of the topical areas to each part as well as the percentage of the topical areas to the entire CMA exam. The total percentage of the sub-parts equals to 100% of the part. For example, the total percentages for the five sub-parts that comprise Part 1, equal to 100% for Part 1. Each part represents 25% of the topical areas of the CMA exam. Thus, the total percentages for the five sub-parts for Part 1 equals 100% for Part 1, as well as equals 25% of the total percentages for the CMA exam.

Research Hypothesis

The purpose of this study is to utilize qualitative research methodology to address the following research hypothesis:

Ho (null): There is no correlation between an educational institution accounting curriculum and the body of knowledge required for the CMA exam.

H1 (alternative): There is a correlation between an educational institution accounting curriculum and the body of knowledge required for the CMA exam.

Findings

The content specification for the CMA exam for Part 1, Business Analysis, is 25% of the CMA exam and consists of five sub-parts. The five sub-parts and as a percentage of the CMA exam are: a) business economics (6.25%), b) global business (5.00%), c) internal control (3.75%), d) quantitative methods (15%), and e) financial statement analysis (6.25%).

The topical areas in sub-parts business economics, internal control, and financial statement analysis are reflected as required courses among the five educational institutions. One sub-part, global business is reflected among the five educational institutions as elective courses. The global business sub-part is divided into three sub-sub-parts; a) global trade, b) foreign exchange, and c) other global topics. Two of the five educational institutions require its accounting students to take six credits (normally two classes in a 15 week semester) in international business (such as Introduction to International Business, International Finance, or International Economics). The remaining three educational institutions have international business courses as elective courses. The content specification for the CMA exam for the global business sub-part is 5.00%.

The sub-part quantitative methods is divided into six sub-sub-parts. The topical areas for five of the six sub-sub-parts are reflected as required courses among the five educational institutions. The exception is the topical area for the sub-sub-part network analysis. The sub-part quantitative methods represents 3.75% of the topical areas of the CMA exam. The CMA LOS does not assign weights to the sub-sub-parts. Therefore, if each sub-sub-part is weighted equally, then each of the six sub-sub-parts of quantitative methods is worth 0.925% of the topical areas for the content specification of the CMA exam. Each of the five educational institutions do not have a course, either as a required course or as an elective course, that covers the topical area of network analysis. The five educational institutions do have required courses in quantitative methods, such as statistics for business or finite mathematics (as part of the general education

requirement), but the course descriptions do not include the topical area of network analysis.

The content specification for the CMA exam for Part 2, Management Accounting and Reporting, is 25% of the CMA exam and consists of five sub-parts. The five sub-parts and as a percentage of the CMA exam are: a) budget preparation (3.75%), b) cost management (6.25%), c) information management (3.75%), d) performance measurement (5.00%), and e) external financial reporting (6.25%).

The topical areas in sub-parts budget preparation, cost management, performance measurement, and external financial reporting business economics, internal control, financial statement analysis are reflected as required courses among the five educational institutions. The topical area for sub-part information management, which is 3.75% of the content specification for the CMA exam, is divided into five sub-sub-parts. If each of the sub-sub-parts are weighted equally, then each sub-sub-part is worth 0.75% of the content specification of the CMA exam. Three of the five sub-sub-parts of information management are reflected as required courses among the five educational institutions. The topical areas for these three sub-sub-parts are covered as required courses by four of the five educational institutions. One of the five educational institutions has all of the topical areas of the sub-part information management as elective courses. The required course(s) tend to be management information systems or business information systems. Two of the five sub-sub-parts are electronic commerce and integrated enterprise wide-data model. The topical areas of both these sub-sub-parts represent 1.5% of the content specification for the CMA exam. Two of the three educational institutions have an accounting information systems course as a required course and the remaining three

educational institutions has accounting information course as an elective course. However, not all of the educational institutions accounting information courses' covers electronic commerce as a topic. Except for one educational institution none of the educational institutions covers integrated enterprise-wide data model. One educational institution has an elective course on introductory enterprise resource planning.

The content specification for the CMA exam for Part 3, Strategic Management, is 25% of the CMA exam and consists of five sub-parts. The five sub-parts and as a percentage of the CMA exam are: a) strategic planning (3.75%), b) strategic marketing (3.75%), c) corporate finance (6.25%), d) decision analysis (6.25%), and e) investment decisions (5.00%).

The topical areas for sub-parts strategic marketing, corporate finance, decision analysis, and investment decisions are reflected as required courses by four of the five educational institutions. The fifth educational institution has required courses for sub-part decision analysis. However, this educational institution has corporate finance and marketing as elective courses for the remaining three sub-parts (strategic marketing, corporate finance, and investment decisions).

The fifth sub-part, strategic planning, which is 3.75% of the content specification for the CMA exam, has three sub-sub-parts. The three sub-sub-parts are: a) strategic and tactical planning, b) manufacturing paradigms, and c) business process performance. If each of the sub-sub-parts are weighted equally, then each of the sub-sub-parts are worth 1.25% of the content specification for the CMA exam. The topical areas for two of the sub-sub-parts, manufacturing paradigms and business process performance, are covered as required courses by all five educational institutions.

Three of the five educational institutions have required courses for the topical area of sub-sub-part strategic and tactical planning. These required courses tend to be either operations management or strategic management and business policy. The remaining two educational institutions have elective courses in organizational behavior or strategic management.

The content specification for the CMA exam for Part 4, Business Application, is 25% of the CMA exam and consists of four equal sub-parts. The four sub-parts and as a percentage of the CMA exam are: a) organizational management (6.25%), b) organizational communication (6.25%), c) behavioral issues (6.25%), and d) ethical considerations (6.25%).

The topical areas in sub-parts organizational management and ethical considerations are reflected as required courses among the five educational institutions. The sub-part ethical considerations is divided into three sub-sub-parts: a) provisions of standards of ethical conduct, b) corporate responsibility for ethical conduct, and c) evaluation and resolution of ethical issues. One educational institution has required courses covering the topical areas of the provisions of standards of ethical conduct. However, it has an elective course covering the topical areas of corporate responsibility for ethical conduct and evaluation and resolution of ethical issues. The remaining four educational institutions have required courses that cover the topical areas of corporate responsibility for ethical conduct and evaluation and resolution of ethical issues.

The topical area in sub-part organizational communication is a required course(s) for three of the five educational institutions as part of the general educational requirements. The remaining two educational institutions have general education requirements;

however, the students can take a variety of courses to fulfill the general education requirements. The topical area for organizational communication is reflected as one of several courses that students can take to fulfill their general education requirements. Therefore, the students can take course(s) that cover the topical area of organizational communication and fulfill the general education requirement.

The sub-part behavioral issues, which is 6.25% of the content specification for the CMA exam, is divided into three sub-sub-parts. The three sub-sub-parts are: a) alignment of organizational goals, b) issues in budgeting and standard setting, and c) issues in reporting and performance evaluation. If each of the sub-sub-parts are weighted equally, then each sub-sub-part is worth 2.08% of the content specification for the CMA exam. The topical areas for two of the sub-sub-parts, alignment of organizational goals and issues in reporting and performance evaluation, are covered as required courses by all five educational institutions. However, none of the five educational institutions has a required course(s) covering the topical area issues in budgeting and standard setting.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The Institute of Management Accountants (IMA) is the oldest accounting association in the United States. According to the IMA website, its vision is to be “the world’s leading association for management accounting and finance professionals.” IMA’s mission is to “provide a dynamic forum for management accounting and finance professionals to develop and advance their careers through certification, research and practice development, education, networking, and advocacy of the highest ethical and professional practices” (http://www.imanet.org/about_mission.asp). Kapoor, Islam, and Mustafa (2006), defines management accountants as “strategic financial management professionals who combine accounting expertise with professional management skills to provide leadership, innovation, and integration perspective to organizational decision-making” (p.113).

From the 1940’s through the 1970’s, IMA’s predecessor organization, National Association of Accountants (NAA), was concerned that there was no public recognition of management accountants. In 1965, the president of NAA established a Long Range Objectives Committee (LROC) to study the future of NAA for the next five to ten years. In 1968, the LROC completed its study and reported to the President and Board of Directors of NAA. One of the recommendations from the LROC was the establishment of an education competency with a certification exam and experience requirement. In 1970, the Education and Planning Committee of NAA established an ad-hoc committee to study the development and timetable for establishing an education competency. In 1971, the ad-

hoc committee's report and recommendations were approved. In 1972, the Certified Management Accountant (CMA) was born.

The purpose of the CMA program is to “provide an objective measure of an individual's knowledge and competence in the field of management accounting” (CMA Candidate Handbook, p.1). The CMA program “embodies an extensive and advanced level curriculum requiring candidates to demonstrate thorough knowledge of accounting, finance, and important related fields, as well as the ability to integrate accounting and financial information into the business decision process” (https://www.imanet.org/about_faqs.asp). According to the CMA Competency Map, CMA's “are professionals who contribute to the greater public good through the efficient and effective utilization of financial and non-financial resources” (p.1). The CMA program consists of two parts; an examination and an experience requirement.

The CMA exam covers a number of broad topics that are taught in colleges and universities such as economics, finance, management, information systems, statistics, and management accounting. The CMA exam requires individuals to master a body of knowledge in different skill levels of content coverage consisting of knowledge, comprehension, application, analysis, synthesis, and evaluation. This body of knowledge is divided into four topic areas which are also represented in the four parts of the CMA exam. The parts are: 1) Part I – business analysis (economics, internal controls, quantitative methods, and financial statement analysis), 2) Part II – management accounting and reporting (budget preparation, cost management, information management, performance measurement, and external financial reporting), 3) Part III – strategic management (strategic planning, marketing, corporate finance, decision

analysis, and capital budgeting) and 4) Part IV – business application (organization management, communication, behavioral issues, and investment decisions). The CMA designation is “an objective measure of knowledge competence in the field of management accounting” (Tatikonda, 2004, 70). The purpose of this study is to see if there is a relationship between an educational institution accounting curriculum and the body of knowledge required for the CMA exam.

In 1991, the IMA installed a new database reflecting various data characteristics including the education institution of the CMA candidate (Barber & Brackner, 1998). Prior to 1991, the IMA did not have a mechanized method of tracking a CMA candidate’s educational institution. While the IMA did not formerly name the database, for the purpose of this study, the database will be known as “the CMA Completer Database” to reflect those CMA candidates that have completed and passed all parts of the CMA exam.

The methodology for this study is to utilize the CMA Completer database for years 2003, 2004, 2005, 2006, 2007, and 2008, a six year history. From the database, determine by year, the top ten educational institutions that produced the most CMA candidates that passed the CMA exam. From the top ten list (by year), determine the top five educational institutions that produced the most CMA candidates that passed the CMA exam from 2003 through 2008. The accounting curriculum of the top five educational institutions was acquired through course catalogs and course descriptions from the educational institution through the Internet. The accounting curriculum of the top five schools was compared with the content specification for the CMA exam to determine what courses fulfill the topical areas of the content specifications for the CMA exam.

Conclusions

The research indicates that there is a correlation between an educational institution accounting curriculum and the body of knowledge required for the CMA exam. The results of the study reflect that a majority, 89% of the required courses for an accounting curriculum (which includes required business courses), relate to the content specification for the CMA exam. In addition, if accounting students take a few business elective courses, then 96% of the courses can relate to content specification for the CMA exam. These findings will be detailed per each of the four parts of the CMA exam.

The specific topical areas for content specification of the CMA exam are listed in the CMA Learning Outcome Statements (LOS) (dated July 2008). The CMA LOS lists specific knowledge items and is divided into 4 parts, 19 sub-parts, and 91 sub-sub-parts. The CMA LOS reflects the body of knowledge needed to pass the CMA exam. For purposes of this study, the content specification for the CMA exam is the CMA LOS. There are four parts to the CMA exam and each part is worth 25% of the content specification for the CMA exam.

Of the topical areas for the content specification of the CMA exam for Part 1, Business Analysis, 19.075% (out of 25%) are reflected as required courses for accounting students. However, 5.925%, consisting of global business (5.00%) and network analysis (0.925%), are topical areas that were not adequately covered as required courses in an accounting curriculum.

Of the topical areas for the content specification of the CMA exam for Part 2, Management Accounting and Reporting, 23.5% (out of 25%) are reflected as required courses for accounting students. However, 1.5%, consisting of electronic commerce

(0.75%) and integrated enterprise-wide data model (0.75%), are topical areas that are not adequately covered as required courses in an accounting curriculum.

Of the topical areas for the content specification of the CMA exam for Part 3, Strategic Management, 23.75% (out of 25%) are reflected as required courses for accounting students. However, 1.25% consisting of strategic and tactical planning is a topical area that is not adequately covered as a required course(s) in an accounting curriculum.

Of the topical areas for the content specification of the CMA exam for Part 4, Business Application, 22.92% (out of 25%) are reflected as required courses for accounting students. However, 2.08% consisting of issues in budgeting and standard setting is a topical area that is not adequately covered as a required course(s) in an accounting curriculum.

The cumulative effect of the analysis is that 10.755% of topical areas, consisting of global business (5.00%), network analysis (0.925%), electronic commerce (0.75%), integrated enterprise-wide data model (0.75%), strategic and tactical planning (1.25%), and issues in budgeting and standard setting (2.08%), are not adequately covered as required courses in the accounting curriculum of the five educational institutions. This equates to 89.245% of topical areas of the content specification for the CMA exam are adequately covered as required courses for the CMA exam. In addition, 7% of the topical areas, consisting of global business (5.00%), electronic commerce (0.75%), and strategic and tactical planning (1.25%) are considered business elective courses. These elective courses can be added to an accounting students' plan of study if they were preparing for the CMA exam. This additional 7% equates to 96% of the courses relate to the content

specifications of the CMA exam. Therefore the null hypothesis is rejected and the alternative hypothesis is accepted.

Recommendations

This study compared the relationship between an education institution accounting curriculum and the content specifications for the CMA exam. The results indicated that at least 89% of the required courses for accounting students relate to the content specifications for the CMA exam. One recommendation is to increase success on the CMA exam, accounting students should take additional courses in global business, either international financial management or international economics, as well as additional courses in information management or information systems. As the world becomes more globalized, and there is greater international trade among business organizations, students need to be aware of the effects of conducting international business. “Information systems and technologies are a vital component of successful businesses and organizations – some would say they are business imperatives” (O’Brien and Marakas, 2008, p.4). As such, accounting students need to be aware of how electronic commerce, database warehousing, and data mining affect business operations.

This study reviewed the accounting curriculum of five educational institutions that produced the CMA candidates that passed the CMA exam over a six year period. A second recommendation is to increase the number of educational institutions whose accounting curriculum is reviewed.

This study reviewed the accounting curriculum of educational institutions which are based in the United States and its territories. A third recommendation is to conduct the study outside the United States and its territories. However, due to differences in

accounting curriculum in each country, a study made be restricted to only a country as opposed to a region of several countries.

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Appendix A

Components of a Common Body of Knowledge for Management Accounting

		Specific Knowledge Items			
No.	Management Accounting Objective	CMA Content	Lander and Reinstein (1987)	Van Zante (1980)	Deakin and Summer (1975)
1	Internal Control and Accounting Systems	9	12	4	5
2	Operational Budgeting	4	12	1	2
3	Standard Costing	1	5	1	1
4	Capital Budgeting	6	11	1	1
5	Product Costing	5	17	1	2
6	Cost Behavior Patterns and Variances	9	14	2	3
7	Organizational Behavior	13	14	3	4
8	Cost Accumulation, General Accounting, and Taxes	13	28	4	5
9	Inventories	0	2	1	1
10	Segments, Decentralization, and Consolidation	1	16	1	3
11	Economics and Government	11	13	5	2
12	Quantitative Methods	8	21	3	7
13	Cost Allocation	0	3	1	3
14	Miscellaneous*	<u>11</u>	<u>0</u>	<u>0</u>	<u>0</u>
	Total – Specific Knowledge Items	91	168	28	39
		===	=====	===	==

* Lander and Reinstein (1987) have thirteen management accounting objectives (MAOs). A fourteenth MAO titled Miscellaneous, was established to reflect those specific knowledge items (SKI) that are part of the Certified Management Accountant Learning Outcome Statements (dated Jul 2008) and are not part of Lander and Reinstein (1987) MAO's.

Appendix B

Top ten education institutions producing the most CMA Candidates that passed the CMA exam

Educational Institution	Barber (2004)	Barber and Brackner (2000b)	Barber and Brackner (2000a)	Barber and Brackner (1998)
University of Wisconsin – Madison	1	1	1	1
University of Minnesota – Twin Cities	2	3	2	2
Indiana University - Bloomington	3	2	3	3
University of Texas – Austin	4	3	4	5
Pennsylvania State University	4	5	6	7
University of Illinois – Urbana – Champaign	6	6	5	4
University of Washington	7	10	7	6
University of Michigan – Ann Arbor	8	10	10	10
University of Northern Iowa	9		11	15
Northern Illinois University	10		8	8
San Diego University	17	7		
Walsh College		7		
Arizona State University	15	9	20	
University of North Carolina – Chapel Hill	16		9	9

Appendix C

List of Gross and Net Number of CMA Candidates that passed the CMA exam and the corresponding number of educational institutions

Year	Gross Number	Passed CFM Exam	No School Listed	Non-U.S. School	Total Reductions	Net Number	Number of Educational Institutions*
2008	831	101	80	220	401	430	273
2007	1,548	390	233	301	924	624	372
2006	1,097	275	160	211	646	451	286
2005	1,253	333	202	187	722	531	337
2004	1,215	425	187	159	771	444	271
2003	1,185	413	143	146	702	483	278
Total	7,129	1,937	1,005	1,224	4,166	2,963	

* The number of educational institutions reflects the educational institutions associated with the net number of CMA candidates that passed the CMA exam and utilized in the study.

Appendix D

Listing of Certified Management Accountant Learning Outcome Statements (CMA LOS) Part and Sub-Part as each sub-part as a percentage of each part and each sub-part as a percentage of the total sub-parts

Part/Sub Part	Topical Area	Percent as a Part	Percent as a Whole
Part 1 – Business Analysis			
A	Business Economics	25%	6.25%
B	Global Business	20%	5.00%
C	Internal Control	15%	3.75%
D	Quantitative Methods	15%	3.75%
E	Financial Statement Analysis	<u>25%</u>	<u>6.25%</u>
	Total Part 1	100%	25.00%
Part 2 – Management Accounting and Reporting			
A	Budget Preparation	15%	3.75%
B	Cost Management	25%	6.25%
C	Information Management	15%	3.75%
D	Performance Measurement	20%	5.00%
E	External Financial Reporting	<u>25%</u>	<u>6.25%</u>
	Total Part 2	100%	25.00%
Part 3 – Strategic Management			
A	Strategic Planning	15%	3.75%
B	Strategic Marketing	15%	3.75%
C	Corporate Finance	25%	6.25%
D	Decision Analysis	25%	6.25%
E	Investment Decisions	<u>20%</u>	<u>5.00%</u>
	Total Part 3	100%	25.00%
Part 4 – Business Applications			
A	Organizational Management	25%	6.25%
B	Organizational Communication	25%	6.25%
C	Behavioral Issues	25%	6.25%
D	Ethical Considerations	<u>25%</u>	<u>6.25%</u>
	Total Part 4	100%	25.00%
	Total of all sub-parts		100.00% =====

GLOSSARY

AAA – American Accounting Association
AACSB – Association to Advance Schools of Collegiate Business
AAPA – American Association of Public Accountants
AAUIA – American Association of University Instructors in Accounting
ABC – Activity Based Costing
ACCA – Association of Chartered Certified Accountants
AIA – American Institute of Accountants
AICPA – American Association of Public Accountants
APB – Accounting Principles Board
ARB – Accounting Research Bulletins
ARD – Accounting Research Division
ARS – Accounting Research Studies
ASR – Accounting Series Release
BBAP – Bookkeepers Beneficial Association of Philadelphia
BRAG – Business Research and Analysis Group
CAP – Committee on Accounting Procedures
CAPM – Capital Asset Pricing Model
CASB – Cost Accounting Standards Board
CBK – Common Body of Knowledge
CEAC – Committee on Establishment of an Accounting Commission
CEO – Chief Executive Office
CFM – Certified Financial Manager
CIA – Controllers Institute of America
CIMA – Chartered Institute of Management Accountants
COSO – Committee of Sponsoring Organization of the Treadway Commission
CPA – Certified Public Accountants
CMA – Certified Management Accountant
CMA LOS – Certified Management Accountant Learning Outcome Statements
DCF – Discounted Cash Flows
ETS – Educational Testing Service

EVA – Economic Value Added
FAF – Financial Accounting Foundation
FASAC – Financial Accounting Standards Advisory Council
FASB – Financial Accounting Standards Board
FEI – Financial Executive International
FIFO – First-In First-Out
FRB – Federal Reserve Board
FTC – Federal Trade Commission
GE – General Electric
GM – General Motors
GMAC – General Motors Acceptance Corporation
IA – Institute of Accountants
IABCY – Institute of Accountants and Bookkeepers of New York City
ICC – Interstate Commerce Commission
IMA – Institute of Management Accountants
IT – Information Technology
KCI – Key Control Indicators
KRI – Key Risk Indicators
LIFO – Last-In First-Out
LROC – Long Range Objectives Committee
MAO – Management Accounting Objectives
M&A – Merger and Acquisition
MAP – Management Accounting Practices
MBA – Master of Business Administration
MVA – Market Value Added
NAA – National Association of Accountants
NACA – National Association of Cost Accountants
NOPAT – Net Operating Profit After-Tax
NOPBT – Net Operating Profit Before-Tax
NYSE – New York Stock Exchange
NYSSCPA – New York State Society of Certified Public Accountants

NYU – New York University
OSM – Office of Strategic Management
PDCA – Plan-Do-Check-Act
RCM – Risk Control Matrix
ROI – Return on Investment
SEC – Securities Exchange Commission
SKI – Specific Knowledge Items
SMA – Statement of Management Accounting
SOX – Sarbanes-Oxley Act of 2002
WACC – Weighted Average Cost of Capital