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American Woman's Society of Certified Public Accountants

American Society of Women Accountants

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- Sexual Stereotyping in Promotion Practices Violates Title VII
- Prospective Financial Statements
- An Investigation into the Effect of "Going Concern" Qualifications on the Stock Market
- Widespread Computerization and Automation of Business Operations
- Developing a Career Plan
- Forensic Accounting
- Microcomputers and Data Communications
- Linking Capabilities of Commercially Available Microcomputer Software
- The Impact of Sex-Role Characteristics on the Job Satisfaction and Success of Women CPAs

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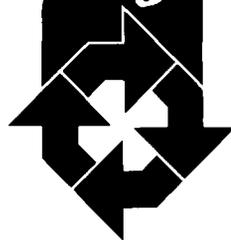
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Editor's Notes

Corporate Rules Evolve From The Military

Circa 400 B.C., Sun Wu, an early Chinese military expert, reputedly authored a remarkable book, *Ping-fa*, otherwise known as *The Art of War*. Sometimes called Sun-tzu for "Master Sun," he deals analytically with the subject of war. His essays form the earliest known treatises on war and are so astute, systematic, and sophisticated that they have never been surpassed in comprehensiveness and in depth of understanding. Well-known in the military academies and in corporate headquarters, his writings apply equally well to modern warfare.

Military Influence

Since women have been largely excluded from the military, women lack this particular experience and knowledge. Margaret Hennig and Anne Jardim point out in their book, *The Managerial Woman*, that men and corporations play by a set of rules fashioned after the military.

In 1985 or earlier, General Motors chairman, Roger B. Smith, hired a strategic planner who got his ideas from Sun Tzu's book to critique its cars and its marketing programs (WSJ, March 14, 1985, p. 1).

Executive recruiters are very much interested in hiring military officers with five to ten years of experience. Corporations who have hired these young men "primed to succeed in business" include Proctor and Gamble, Texas Instruments, Ford Motor Co., Honeywell Inc., Corning Glass Works, Johnson and Johnson and United Technologies Corporation to name only a few. Most military men are well-prepared for business. They have learned "to go along;" they are very mature; they have learned to work in close quarters; and they depend on the people around them. They especially think in terms of military tactics and strategy when engaging in corporate planning (WSJ, April 9, 1985, p. 31).

William E. Peacock, assistant secretary of the Army under Jimmy Carter, has authored a book, *Corporate Combat*, which extols the basic principles

of war and how they are used by business. Peacock illustrates how today's corporate executives, with or without military training, put these concepts into action. He uses the acronym MOOSEMUSS to stand for mass (strength against weakness), objective, offense, simplicity, economy of force, maneuver or strategy, unity of command, surprise and security.

Sun Tzu's Principles

What does Sun Tzu say that is so applicable to corporate America today? And how do his principles relate to modern business operations?

The first principle, that war is a matter of vital importance to the State...the road to survival or ruin, can be reworded to read that profitability and solvency are matters of vital importance to business...the road to survival or ruin.

The second principle appraises war in terms of five fundamental factors: morality of the government, the weather, the terrain, command and doctrine. Moral influence is that which causes people to be in harmony with

New Editor for TWCPA

Lillian Cundiff Parrish, CPA, Ph.D., associate professor of accounting at the University of Central Arkansas, Conway, Arkansas, was named Editor of the journal July 1, 1986.

Holding a Ph.D. from the University of Mississippi, Dr. Parrish has been a member of TWCPA Editorial Board since 1981. She is serving on the Accounting Standards Coordinating Committee for AWSCPA and is an active member of the Central Arkansas Chapter of ASWA at Little Rock. Her other memberships include AAA and AICPA. She presents many one and two-day seminars and is a frequent speaker at regional accounting meetings.

their leaders and willing to serve them. Weather is the effects of winter's cold and summer's heat. Terrain is the distance to be covered, whether with ease or difficulty, whether open or constricted. Command is the five virtues a general should hold: humanity, wisdom, sincerity, courage and strictness. Without courage, a general cannot conquer doubts or create great plans. Doctrine is organization, control and assignment of rank to officers. Changing the words "government" to "business" and "general" to "CEO" makes this principle equally applicable to the business environment.

Sun Tzu's third principle states that all warfare is based on "deception." Offer the enemy bait to lure him and feign disorder. Where he is strong, avoid him. Where he is united, divide him. Attack where he is unprepared; sally out where he does not expect you. American Greetings exemplified deception when they brought out the Strawberry Shortcake doll which then enabled them to feature the dolls on their greeting cards and thus penetrate Hallmark's market.

Victory is the main object in war—not prolonged actions—so states the fourth principle. If victory is long delayed, morale becomes depressed, troops become exhausted, the treasury becomes spent, and neighboring rulers will take advantage of your distress. This principle can be equated with the speed and offensive strategy needed to deliver a new product or service to the marketplace, the cost involved, and the morale of the employees.

Five, a good general must be able to put his plans into action. And, so must the corporate executive have the authority and capacity to act, the ability to lead, and the willingness of the rank and file to follow.

Subdue the enemy without fighting states the sixth principle. Do the unexpected; pursue the indirect approach. Competitors were taken by surprise when Ford Motor Co., under Lee Iacocca, introduced the sporty Mustang in 1964.

Seven, supreme excellence is to attack the enemy's plans, to disrupt his alliances, to attack his army, and last of all to attack his cities. The best policy is to take a state intact; to ruin it is inferior. The constant competition

MORE ON PAGE 37.

Sexual Stereotyping in Promotion Practices Violates Title VII

The Hopkins v. Price Waterhouse Case

By Clifford E. Hutton, Michael J. Tucker, and Sheila M. Bradley

In *Hopkins v. Price Waterhouse*¹ the United States District Court for the District of Columbia recently found a major public accounting firm guilty of sex discrimination when it refused to promote a woman manager to partner. Only fifteen months earlier, the Supreme Court of the United States in *Hishon v. King & Spalding*² held that promotion to partnership in a law firm was subject to Title VII of the Civil Rights Act of 1964—the first application of Title VII to a professional partnership.³ The *Hishon* and *Hopkins* decisions place the whole selection process for admission into an accounting firm partnership as it relates to the admission of minority candidates under intense judicial scrutiny.

Hopkins v. Price Waterhouse

In 1982, Ann Hopkins, the plaintiff, a female accountant and senior manager, was proposed for partnership in Price Waterhouse by her office, the Office of Government Services (OGS), a division of Price Waterhouse. Of the 88 candidates for partnership that year, plaintiff was the only woman. At that time all of the OGS partners were men, and by July 1984 there were only seven women among

the 662 partners at Price Waterhouse.

The Court noted plaintiff's successful career as a senior manager and her significant role in developing business for the firm. None of the other partnership candidates competing that year had a comparable record in terms of successfully securing major contracts for the partnership. The record indicated that clients were very pleased with the plaintiff's work and that she had no difficulty dealing with them. Her proposal for partnership was fully endorsed by the partners in the OGS office. Price Waterhouse admitted that based upon technical qualifications the plaintiff's fitness to become a partner was never in doubt.

In its partnership selection process, Price Waterhouse asks all the partners to not only rank candidates on an exhaustive list of relevant, neutral criteria, but to make one of three recommendations: (1) for admission, (2) deny admission, or (3) hold for further consideration, and to comment on their appraisal. Of the 32 partners who submitted evaluations concerning the plaintiff, 13 recommended admission, 8 denial, 3 hold, and 8 had insufficient basis for opinion. Many commentators felt that Ms. Hopkins had problems

dealing with fellow employees. These comments indicated the plaintiff had particular difficulty dealing with lower ranking staff members of the firm. Both supporters and opponents indicated the plaintiff "was sometimes overly aggressive, unduly harsh, difficult to work with and impatient with the staff."⁴ Because of the number of negative comments by both supporters and opponents, along with the significant number of no votes, most by partners who had had limited contact with the candidate, the Admission Committee decided to recommend that the plaintiff's admission to the partnership should be held at least a year in order to afford her time to demonstrate the personal and leadership qualities required of a partner.

To improve her chances of making partner next year, and at the urging of her senior partner, the plaintiff underwent a Quality Control Review with favorable results. This was a process by which the plaintiff was given pointers to help repair any deficiencies prior to the time she was reviewed for partner again. Several partners also stated that they planned to give her opportunities to demonstrate her abilities, but apparently never followed through. Just four months after the Policy Board's recommendation that she should be held for a year, the partners in OGS decided not to repropose the plaintiff for partnership because two partners in the OGS office now strongly opposed her candidacy.

When Price Waterhouse advised the plaintiff of this decision, and of the unlikelihood of admission to partnership, she chose to resign in January, 1984, rather than try again for admission into the partnership or remain as a senior manager as proposed by the defendant. The plaintiff filed suit alleging sex discrimination in violation of Title VII, and asked the Court to order that she be made partner and to

**Firms may not inject
stereotyped assumptions
about women into the selection
process for partnership.**

award back pay and other monetary relief.

Plaintiff's Argument

The plaintiff argued that the decision was discriminatory because (1) the criticisms of plaintiff's interpersonal skills were inaccurate and untrue; (2) even if Price Waterhouse believed her personal skills were deficient, the partnership routinely admitted male candidates having problems with interpersonal skills if they had strong qualifications in other areas; (3) Price Waterhouse's critique of the plaintiff's interpersonal skills was a result of sexual stereotyping by male partners. The firm's partnership selection process improperly gave full weight to these discriminatory evaluations. Price Waterhouse denied each of the allegations and claimed that the plaintiff was properly denied partnership because the firm, for legitimate business reasons, avoids admitting abrasive partners who might jeopardize morale and who were incapable of effectively supervising staff members.

The Court noted that Ms. Hopkins' inability to get along with staff members or peers is a legitimate, non-discriminatory reason for refusing to admit her to the partnership. The Court accepted as accurate that the complaints about the plaintiff's interpersonal skills were not fabricated or a pretext for discrimination. The Court acknowledged the plaintiff was a hard-driving manager who pushed her staff and occasionally used profanity, but was not persuaded that such conduct was relevant to this inquiry.

In considering the plaintiff's allegations, the Court examined the records generated by the partnership selection at Price Waterhouse for 1982, 1983, and 1984. The Court found that Price Waterhouse had legitimate, non-discriminatory reasons for distinguishing between the plaintiff and the male partners with whom she was competing, and that the firm's emphasis on negative comments, did not, by itself, result in any discriminatory treatment. The practice of giving great weight to "no" votes was applied in the same way to male and female candidates. Statistics submitted by the plaintiff showing the small number of women partners at Price Waterhouse and the lower selection rate of women

The plaintiff claimed she was a victim of sexual stereotyping.

for partnership were found to be inconclusive because of insufficient data or lack of statistical significance.

Major Focus on Sexual Stereotyping

The major focus of this case was the plaintiff's third argument: that she was a victim of sexual stereotyping, and that discriminatory evaluations were improperly used by defendant in the partnership selection process. The plaintiff claimed that she was not evaluated as a manager, but as a "woman manager," because those who evaluated her used sexual stereotypes that prompt men to regard assertive behavior in women as being more offensive and intolerable than comparable behavior in men.

Some of the comments noted included: "she may have overcompensated for being a woman," suggesting she "take a course at a charm school," came across as "macho," focusing on her profanity "because it's a lady using foul language." Her strongest supporter, the head partner at OGS, was responsible for telling her what problems she needed to overcome with her candidacy, and he advised her to "walk more femininely, talk more femininely, dress more femininely, wear makeup, have her hair styled, and wear jewelry."⁵

The Court analyzed the comments made about other women candidates for admission to the Price Waterhouse partnership and found these comments supported the inference that the partnership evaluation process used by Price Waterhouse was affected by sexual stereotyping. The Court felt that Price Waterhouse did nothing to discourage sexually biased evaluations. The Court used as an example of this negligence the comments of a partner who repeatedly said he could never consider a woman seriously for partner and did not think a woman was capable of being a senior manager.

Apparently the court felt that Price Waterhouse never acted to discourage such comments, and that this recommendation was given equal consideration with other partner's comments.

The Court took note of the testimony of plaintiff's expert witness on stereotyping, and held that stereotyping played an undefined role in blocking plaintiff's admission to the partnership in this instance. The evidence indicated that the partner's stereotyping behavior though not conscious was nonetheless efficacious in blocking the plaintiff's admission to partnership. Prior case law required proof of discriminatory motive or purpose to establish a claim of disparate treatment based on subjective evaluations.⁶ Under these prior holdings Price Waterhouse could not be found guilty of discrimination since any sexual bias in its promotions process was unconscious. The District Court held however that the use of a system that gave weight to such biased criticism was a conscious act of the partnership as a whole. Furthermore, they indicated that Price Waterhouse should have been aware that women might well be victims of discriminatory stereotypes when being evaluated by male partners. The firm made no effort to investigate or address this issue. A general policy statement of equal employment opportunities for all minorities issued by Price Waterhouse in 1983 was not considered a significant attempt since it did not address the special concerns of discrimination against women in an overwhelmingly male partnership.

The Court's Findings

The Court found that although firms are free to use subjective evaluations as criteria in selecting employees for partners, they are not free to inject stereotyped assumptions about women into the selection process. The firm's failure to take the steps necessary to alert partners to the possibility that their judgments may be biased, to discourage stereotyping, and to investigate and discard, where appropriate, comments that suggest a promotion and evaluation policy constitutes a violation of Title VII. The Court noted the presence of three factors which working in combination produced the Title VII violation: 1) comments influenced by sex stereo-

types were made by partners, 2) Price Waterhouse's evaluation process gave substantial weight to such comments, 3) Price Waterhouse failed to address the conspicuous problem of stereotyping in its partnership evaluations. While these three factors might have been mitigatory in denying plaintiff admission to the partnership when taken separately, when acting in concert, they produced Ms. Hopkins' rejection as a partner. The Court found the Policy Board's decision not to admit the plaintiff to partnership was tainted by discriminatory evaluations that were the direct result of its failure to address the evident problem of sexual stereotyping in partners' evaluations.

Acknowledging the plaintiff might still not have been elected to partnership without the stereotyped evaluations, the Court stated that once discrimination has been proved, the burden of proof is on the employer to prove that the decision would have been the same, and that Price Waterhouse did not present that proof. Therefore the defendant was found guilty of sex discrimination.

Because the plaintiff had voluntarily resigned, and was unable to prove constructive discharge, the Court denied her request for an order that she be made a partner. Because the parties agreed privately to defer consideration of backpay until after the issue of liability was resolved without the knowledge or consent of the Court, the Court found that it could not consider that issue, and awarded only attorney fees to the plaintiff.

Conclusion

Title VII requires affirmative action to root out discriminatory promotion standards, not just neutrality or a lack of discrimination. The Court's focus on Price Waterhouse's selection process in *Hopkins* showed that the choice of neutral criteria in the evaluation process is not sufficient, the criteria must be used neutrally. In repeatedly citing the defendant for failure to recognize and act upon obvious bias, the Court demonstrated that a company has a positive responsibility to prevent such bias in its employment practices. The Court did not find a general statement of a policy of equal opportunity at all adequate, but indicated a need for a policy that addressed the specific concerns of women.

It is apparent the Courts are seeking, and will be satisfied with no less than a comprehensive program to ensure that minorities are treated equally in the entire employment process. This will require more than reacting to evidence of bias, and the education of personnel to the existence of stereotyping and its consequences. Companies will need to assess whether in their training practices, selection of assignments, etc., minorities are not penalized by outmoded perceptions. An often unconsciously held notion about women is that pregnancy means resignation or that women will leave after a few years of marriage. Several surveys have shown, however, that women change jobs for the same reasons as men—professional, work-related considerations.⁷

"Client resistance" to women is another widespread perception with which the Courts may have little patience, and may find that the company has a duty to provide their women employees with at least equal exposure to clients, and even with educational programs structured to make up for a lack of such experience.

Public accounting firms may need to look to the experience of firms like Merck which "has a program that identified 10 percent of its women and 10 percent of minorities as 'most promising.' The company prepares a written agenda of what it will take for them to move up to the next level. Progress upward may mean changing jobs or switching functions, so Merck circulates their credentials throughout the company. 'We have a timetable and we track these women carefully,'...Since 1979 almost 40 percent of the net growth in Merck's managerial staff has been women."⁸

Support and encouragement by management is crucial in retaining talented employees of both sexes.

Firms may use subjective evaluations as criteria in selecting employees for partners.

Perceived prejudice of any accounting firm against women may encourage women to look elsewhere for opportunities to use their talents. All the traditionally male dominated professions are having to adapt, often reluctantly, to the growing presence of women.

These issues have implications for minorities other than women, who might argue that neutral standards may be misused by white males who unconsciously rely upon stereotypes when making promotion decisions. There is no doubt that neutrality in applying promotion standards will be essential in avoiding costly lawsuits and the loss of valued professionals. Ω

NOTES

¹ Civil Action No. 84-3040, filed September 20, 1985.

² 104 S. Ct. 2228 (1984).

³ The relevant portion of Title VII states that: a. It shall be unlawful employment practice for an employer—(1) to fail or refuse to hire or to discharge an individual, or otherwise to discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, or national origin.

⁴ No. 1 supra., page 5.

⁵ No. 1 supra., pages 15-16.

⁶ *International Brotherhood of Teamsters v. United States*, 431 U.S. 324, 335 n. 15 (1977).

⁷ No. 8 supra., p. 31 and Melanie Walkup and Debra Fenzau, "Women CPA's: Why Do They Leave Public Accounting," *The Woman CPA*, October, 1980, page 4.

⁸ Susan Fraker, "Why Women Aren't Getting To The Top," *Fortune*, April 16, 1984, p. 45.

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Prospective Financial Statements

New Rules for Public CPAs and Implications for Management Accountants

By Anne J. Rich

Historical financial statements have developed from decades of input from professional associations, public accountants, management accountants and the government. While historic financial statements remain in a state of constant change, most users understand the basic statement of financial position, income statement and statement of changes in financial position. In addition, the three levels of service public accounting firms offer, namely audit, compilation and review, are also familiar to most users of historical financial statements. However, when we move from historical financial statements to prospective financial statements, our understanding is clouded by a lack of uniformity, unclear definitions, and until recently, an absence of authoritative accounting rules for reporting. Two recent AICPA pronouncements, *Guide for Prospective Financial Statements (1986)* and *Statement on Standards for Accountants' Services on Prospective Financial Information* will change the way public accountants are associated with forecasts and projections. They will also impact on the design of forecasting systems in many business organiza-

Definitions

Any financial information about the future is called prospective. Prospective financial information that is properly formatted to present financial position, results of operations and changes in financial position is referred to as a prospective financial statement.

The AICPA has differentiated between forecasts and projections. They define a forecast as a prospective financial statement that presents, to the best of the responsible party's knowledge and belief, an entity's expected financial position, results of operations, and changes in financial position. On the other hand, a projection is a prospective financial statement that reflects one or more hypothetical assumptions that the responsible party does not believe will actually occur. (The responsible party is anyone who is responsible for the assumptions used to make the forecast or projection; the party could be management but may be someone outside the entity).

Forecasting Systems

Over a decade ago, the AICPA established the foundation for their

current position. Early significant literature included *Presentation and Disclosure of Financial Forecasts* and *Systems for the Preparation of Financial Forecasts*. The latter document identified ten important characteristics of the system that generates the forecast. Modified somewhat and extended to include all prospective financial statements, the ten guidelines are important to both management accountants who design the system and the public accountants who must analyze the strengths and weaknesses of this planning and control system. The guidelines appear in Exhibit 1.

Presentation and Disclosure

Rules for presentation and disclosure for forecasts have also existed for more than a decade. The latest pronouncements have extended the presentation and disclosure requirements to projections. No prospective statement may be issued without a summary of significant assumptions. The amount of additional information disclosed as well as the type of prospective statement issued depend on whether the statements are for general use or limited use. General users are those with whom the responsible party is not negotiating directly, such as unknown potential stockholders. Limited users are persons with whom the responsible party is negotiating directly, such as a banker. There will be special rules for internal use only documents which are provided for management's information.

Since general users, such as potential stockholders and creditors, rely heavily on prospective financial statements because they do not have access to management, the AICPA felt strongly about protecting these users. They concluded that while a financial forecast with all the required disclosures is adequate for the general user, a single financial projection may be misleading. Therefore, for general users, a single projection is prohibited. Instead, a set of projections may be sufficient as long as the hypothetical assumptions result in a reasonable range and the reader is alerted that the range presented in the statements does not guarantee the financial performance. Limited users may be issued a forecast or a single projection.

A complete prospective financial statement includes, at a minimum, the

items listed in Exhibit 2. While a condensed version is acceptable, prospective financial statements should preferably be in the format of historical financial statements. A presentation that omits one or more of the first nine items is considered a partial presentation inappropriate for general use. If items ten, eleven or twelve are missing, the document is considered deficient in presentation and the external reviewer will note this in the accountant's report.

Earlier literature rejected the idea that a prospective financial statement could contain a range of dollars for each line item in the report. Only specific monetary amounts were allowed. The AICPA relaxed this restriction and now permits ranges as well as point estimates. They caution, however, that when a range is selected, it should not bias or mislead the reader, such as, a range in which one end is significantly less expected than the other.

Reporting Rules

For a long time, the AICPA was under pressure from CPAs to establish standards for accountants who review, compile or assemble prospective financial statements. The first document that provided procedures and mandated reports focused solely on reviewing financial forecasts. While it was a start, it fell short of the needs of public and management accountants who needed guidance on providing other services as well as issuing projections. In addition, the significance of the term "review" of a financial forecast was confusing to many readers who understood the level of assurance given to a review of an historical financial statement. To correct for these deficiencies, in 1983 the AICPA issued an exposure draft and in 1986, after much discussion and some modifications, published the *Guide for Prospective Financial Statements*. The Auditing Standards Board approved the Guide and established procedures and reporting standards for the accountant who either (1) submits to his or her clients or others prospective financial statements that he or she has assembled or assisted in assembling or (2) reports on prospective financial statements that were compiled, examined or in which agreed-upon procedures were applied, if those statements are, or

EXHIBIT 1 Summary Of Guidelines For Prospective Financial Statements

1. Financial forecasts should be prepared in good faith.
2. Financial forecasts should be prepared with appropriate care by qualified personnel.
3. Financial forecasts should be prepared using appropriate accounting principles.
4. The process used to develop financial forecasts should provide for seeking out the best information that is reasonably available at the time.
5. The information used in preparing financial forecasts should be consistent with the plans of the entity.
6. Key factors should be identified as a basis for assumptions.
7. Assumptions used in preparing financial forecasts should be appropriate.
8. The process used to develop financial forecasts should provide the means to determine the relative effect of variations in the major underlying assumptions.
9. The process used to develop financial forecasts should provide adequate documentation of both the financial forecasts and the process used to develop them.
10. The process used to develop financial forecasts should include, where appropriate, the regular comparison of the financial forecasts with attained results.
11. The process used to prepare financial forecasts should include adequate review and approval by the responsible party at the appropriate levels of authority.

Source: *Guide for Prospective Financial Statements*, AICPA, 1986, pg. 22-23

EXHIBIT 2 Minimum Presentation Guidelines For Prospective Financial Statements

1. Sales or gross revenues
2. Gross profit or cost of sales
3. Unusual or infrequently occurring items
4. Provision for income taxes
5. Discontinued operations or extraordinary items
6. Income from continuing operations
7. Net income
8. Primary and fully diluted earnings per share
9. Significant changes in financial position
10. A description of what management intends the prospective financial statements to present, a statement that the assumptions are based on information about circumstances and conditions existing at the time the prospective information was prepared, and a caveat that the prospective results may not be achieved
11. Summary of significant assumptions
12. Summary of significant accounting policies

Source: *Guide for Prospective Financial Statements*, AICPA, 1986, pg. 35

Two levels of service exist for prospective statements:
compilation and examination.

EXHIBIT 3

Standard Compilation Report of a Forecast (Does not contain a range)

We have compiled the accompanying forecasted balance sheet, statements of income, retained earnings, and changes in financial position of XYZ Company as of December 31, 19XX, and for the year ending, in accordance with standards established by the American Institute of Certified Public Accountants.

A compilation is limited to presenting in the form of a forecast information that is the representation of management and does not include evaluation of the support for the assumptions underlying the forecast. We have not examined the forecast and, accordingly, do not express an opinion or any other form of assurance on the accompanying statements or assumptions. Furthermore, there will usually be differences between the forecasted and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. We have no responsibility to update this report for events and circumstances occurring after the date of this report.

Source: *Statement on Standards for Accountants Services on Prospective Financial Information*, AICPA, October, 1985, pg. 9-10

EXHIBIT 4

Standard Report on an Examination of a Forecast (Does not contain a range)

We have examined the accompanying forecasted balance sheet, statements of income, retained earnings, and changes in financial position of XYZ Company as of December 31, 19XX, and for the year then ending. Our examination was made in accordance with standards for an examination of a forecast established by the American Institute of Certified Public Accountants and, accordingly, included such procedures as we considered necessary to evaluate both the assumptions used by management and the preparation and presentation of the forecast.

In our opinion, the accompanying forecast is presented in conformity with guidelines for presentation of a forecast established by the American Institute of Certified Public Accountants, and the underlying assumptions provide a reasonable basis for management's forecast. However, there will usually be differences between the forecasted and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. We have no responsibility to update this report for events and circumstances occurring after the date of this report.

Source: *Statement on Standards for Accountants Services on Prospective Financial Information*, AICPA, October, 1985, pg. 15

reasonably might be, expected to be used by another party. The Auditing Standards Board Statement is effective for engagements in which the date of completion is September 30, 1986 or later.

New Levels of Service

For prospective financial statements, two levels of service now exist: compilation and examination. (The word "examination" has been substituted for the term "review" to eliminate confusion between prospective and historical financial statements).

A compilation is a professional service that involves (a) assembling, to the extent necessary, the prospective financial statements based on the responsible party's assumptions, (b) performing the required compilation procedures, and (c) issuing a compilation report. While a compilation is not intended to provide assurance on the prospective financial statement, it is clearly more than putting prospective numbers in the form of a financial statement. The accountant must be familiar with the industry, read the statements and the summaries of

significant assumptions and determine that the presentation and disclosures are in conformity with AICPA guidelines. The report for a forecast will follow the standard compilation report form shown in Exhibit 3. The wording is modified for a projection or for prospective financial statements that contain a range instead of single monetary amounts.

An examination is a professional service that involves (a) evaluating the preparation of the prospective financial statements, (b) evaluating the support underlying the assumptions, (c) evaluating the presentation of the prospective financial statements for conformity with AICPA presentation guidelines and (d) issuing a report. The procedures are more extensive than those of a compilation. The objective of the examination is to gather sufficient evidence to support the reasonableness of the assumptions and the appropriateness and completeness of the disclosures. The standard report for an examination of a forecast that does not contain a range is presented in Exhibit 4.

In addition to compilation and examinations, an accountant may accept an engagement to apply agreed-upon procedures to prospective financial statements. To perform this service, it is necessary that the specified users involved have participated in establishing the nature and scope of the engagement, taken responsibility for the adequacy of the procedures performed, been assured the report is restricted to the specified users and the prospective financial statements include a summary of significant assumptions. At the conclusion of this type of engagement, a report must be issued.

Suggestions for internal use only reports are found in the Guide. (The Auditing Standards Board felt this was outside their area of responsibility but cautioned the accountant to follow all rules of ethical conduct.) The procedures should be consistent with the nature of the engagement, and a written understanding should be established with the client regarding the services to be performed and the restriction on the distribution of the prospective financial statement. A report should be issued identifying the statements being reported on, describing the character of the work performed and the degree of responsibility the

accountant is taking, and indicating the restrictions as to the distribution of the document and report.

Implications for Public Accountants

The new levels of service and the new definitions provide challenges to the profession:

- Become familiar with the Auditing Standard Board's *Statement on Standards for Accountants' Services on Prospective Financial Information* (October, 1985) and the *Guide for Prospective Financial Statements* (1986).
- Clarify the differences between a forecast and a projection, as well as the differences between a compilation and an examination, with all users: management, bankers, stockholders, potential buyers. Just as confusion existed for a short time over compilation and review of historic financial statements, expect a learning period.
- Determine who in your firm has the expertise to perform compilations and examinations and who will review the work.
- Establish a data base of common economic and industry indicators useful for making predictions.
- Learn how to forecast using spreadsheets.
- Improve your forecasting techniques by integrating statistical analysis in your forecasts and projections.

Implications for Management Accountants

The burden of preparing prospective financial statements rests with management. Management accountants must:

Forecasts and projections have always been important to managers, creditors, stockholders and potential buyers.

• Be sure the forecast is prepared in good faith. Good faith in this context includes making a diligent effort to develop appropriate assumptions. Optimism and pessimism should be avoided.

- Be sure marketing, operations, finance and other technical personnel provide input to the forecast.
- Acquire the appropriate analytical skills to engage in forecasting.
- Develop a model so that variations in assumptions can be measured.
- Use the same accounting principles in the forecast and the historic financial statements.
- Develop a data base of useful external information.
- Keep track of key internal and external assumptions. Some will become more important over time while others will become less important.
- Maintain records so that the forecast can be compared to actual results.
- Be sure there is adequate review and approval at appropriate levels of authority.

The Future

Forecasts and projections have always been important to managers, creditors, stockholders, and potential buyers. Accountants know there is a need to refine, improve and standardize the services relating to prospective financial statements. By following the AICPA guidelines, readers will be more informed, understand the tentative nature of prospective financial information, and appreciate the accountant's role in compiling or examining the statements. Undoubtedly, the rules will be subject to constant change and interpretation, just as historical financial statements have evolved over time; however, the improved communications between accountant and user will justify the effort and the profession will be enhanced by the informed use of prospective financial information.Ω

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An Investigation into the Effect of "Going Concern" Qualifications on the Stock Market

By Betty C. Brown and Alan S. Levitan

The auditor's responsibility when a firm's continued existence is in question was addressed in Statement on Auditing Standards No. 34. Although SAS No. 34 attempts to establish some general guidelines for the auditor to consider in formulating his opinion, it does not offer any specific criteria for the auditor to follow. On the contrary, SAS No. 34 refers to the subjectiveness of the auditor's opinion.

Identifying the point at which uncertainties about recoverability, classifications, and amounts require the auditor to modify his report is a complex professional judgment. No single factor or combination of factors is controlling.¹

After having accumulated all relevant information, the auditor must rely upon his/her own judgment of the materiality of the difficulties. He/she must ultimately determine the extent of disclosure required. If the auditor cannot assuage his/her doubts about continuity, some sort of qualification or disclosure is appropriate. First, however, the auditor will do all that is reasonable to eliminate these doubts, usually relying upon evidence that is persuasive rather than convincing.

Without clearly stated criteria, different auditors might issue different reports on the same firm. It is possible that a "going concern" exception is a self-fulfilling prophecy: firms that otherwise might succeed, could fail *because* of the auditor's report.

Given the possibility that the auditors' report may contribute to a firm's failure, it is difficult to test the superiority of the auditor's ability to predict failure over the investor's ability to predict failure, using only market data. Nonetheless, auditors are forced into the position of "predicting." Moreover, it is asserted that auditors have access to certain "qualitative" (as well as additional quantitative) data that are not contained in the financial statements. Assuming that the market is efficient in the semi-strong form, these "qualitative" data that are not publicly available should be the only factor separating the auditor's predictive ability from the investor's predictive ability.

As an alternative to the "going concern" qualification, these "qualitative" characteristics could be disclosed in the financial statements. It appears appropriate, therefore, to question the influence of the auditors' report on the

behavior of investors. If investors react to a qualified opinion, it may be concluded that they perceive the report to contain information. If they do not, all the concern about self-fulfilling prophecies would be moot. It must be determined whether the report is perceived to contain information before it can be decided if there is a better way of conveying that information.

This study investigates the relationship of going concern qualifications to security price behavior. Because the auditor's report is an integral part of the financial statements, it is necessary to separate the effect of the auditor's report from the effect of the financial statements. This is accomplished by pairing a company receiving a "going concern" qualification with a company having similar financial ratios, in the same industry, and receiving an unqualified opinion.

Differences between stock market reactions of companies receiving "going concern" qualifications and similar companies receiving unqualified opinions were detected. However, the reaction began five weeks prior to year-end, well before the release of the auditor's report, and continued thirty weeks after year-end.

The use of financial ratios as a tool for projecting viability was used in a classic study by Altman.² He developed a model that used five ratios in a single formula derived by multivariate discriminant analysis (MDA). This formula could be applied to the ratios of any single year's financial results. His final function was

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5 \text{ where}$$

- X_1 = working capital/total assets
- X_2 = retained earnings/total assets
- X_3 = earnings before interest and taxes/total assets
- X_4 = market value of equity/book value of total assets
- X_5 = sales/total assets

He found that a Z score less than 2.675 indicated that a company's financial profile was similar to that of companies which had failed.

The semi-strong form of the efficient market hypothesis, asserting that the prices of securities traded on that market fully reflect all publicly avail-

able information, has received substantial support in the literature. A recent study by Lev and Ohlson³ reviews and summarizes previous market-based accounting research.

Firth⁴ attempted to investigate the impact of qualified opinions on investor decisions. He examined the impact by contrasting the market reactions toward firms receiving qualified opinions with firms in the same industry that received unqualified opinions. He found significant differences in the reactions for firms receiving "going concern" qualifications. The primary problem with his study is that he did not control for the market's response to the financial statements themselves. This omission casts serious doubts on the validity of his findings.

The familiar Market Model has been used to compute residuals. Many market studies have used the popular cumulative-average-residual (CAR) technique, developed by Fama, Fisher, Jensen, and Roll,⁵ of detecting changes in security price behavior.⁶

The period for the test described herein began nine weeks preceding year-end. Residuals were computed and the differences in cumulative average residuals for each pair of companies were analyzed to see if they are significantly different from zero. Differences were tested using the general paired t-test.⁷

The Sample

The NAARS data base for 1978 to 1982 was searched for companies receiving their first going concern exception. Twenty-seven companies were selected. Altman's Z value was computed for each company as a surrogate for its financial condition at the time of the audit exception. Then for each company in the sample, Altman's Z was computed for all companies on Standard and Poor's Industrial COMPUSTAT file according to the following criteria: (1) it must be in the same four-digit SIC code, (2) its year must end within the same COMPUSTAT year, and (3) it must be traded on the NYSE or the ASE. The company with a Z value closest to the original company was declared its match, after determining that the match did not receive a going concern exception. Finally, security returns for all selected com-

	Mean	Standard Deviation	T	p-value
Exception Match	2.35910741 2.21711481	3.11730529 1.46896016	0.2141	0.8316

panies were taken from the Center for Research on Security Prices (CRSP) daily tapes.

Each of the 27 pairs of companies in the sample consists of a company receiving its first going concern exception and its match.

The general t-test was used to compare the means of the Z values for the two groups of companies. Test results for the entire sample failed to reject the null hypothesis that the means of the two groups were significantly different; therefore, it is logical to conclude that the two groups have similar Z values. This supports the underlying premise of the study, that the two groups are from the same population based upon their financial statement characteristics. Moreover, the financial ratios of both groups resemble failed companies.

Results and Conclusions

Results of the t-tests on the differences between the residuals of the companies receiving going concern exceptions and their matches, as illustrated in Figure 1, indicate that the stock market did not react the same to the two types of companies. Residuals of zero indicate the security prices are behaving as expected. Negative residuals reflect a poorer than expected performance and positive residuals show a better than expected performance. Differences between the residuals became significantly different from zero about a month before year-end.

The differences in the residuals were not significantly different from zero for the first five weeks of the period of study. This period was well after the release of the third quarter earnings, but before the release of the year-end information. No information about either category of company should normally have been released

during this period. The reaction occurring immediately after this period was evidently the result of the market's anticipation of the release of the financial statements. Also, leaks about the going concern qualification may have begun prior to year-end.

Generally, the match companies have more internal consistency than the exception companies, suggesting that auditors do not base their exceptions, consistently, on financial characteristics alone. Except for the third week before year-end, standard errors (variances) are higher for the exception companies and, based upon that statistic, the samples represent two different populations.

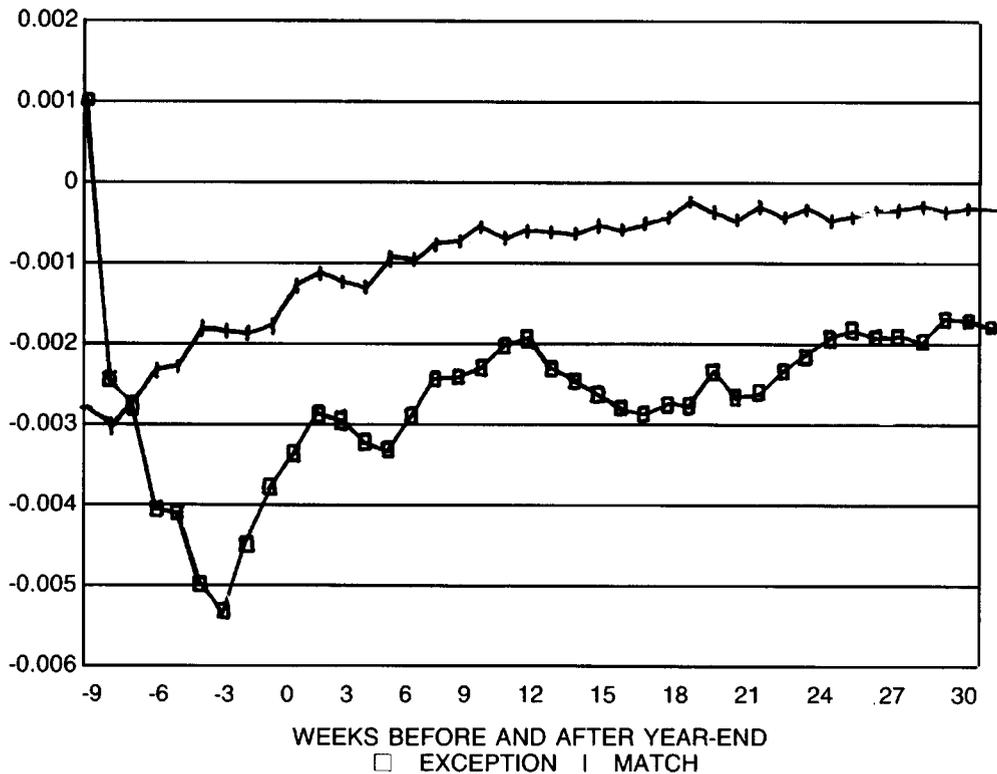
All companies in the experiment exhibit worsening performance during the time period studied as demonstrated by the Residuals graph, Figure 2. However, the performance of those which received going concern exceptions worsened significantly more than that of the companies with matching financial characteristics but more favorable auditors' opinions. These differences occurred early enough, however, to suggest that either (1) the auditor's opinion is a "non-event," or (2) auditors' evaluations of companies are quite similar to those of investors.

It is possible that a "going concern" exception is a self-fulfilling prophecy.

FIGURE 1
Graph Of The Differences Using
The Cumulative-Average-Residual Technique



FIGURE 2
Graph Of The Cumulative-Average-Residuals



There were strong downward movements in the CARs of the exception companies prior to year-end and another slight downward fluctuation immediately after year-end, possibly indicating negative expectations about the contents of the financial statements. On the other hand, the CARs of the match companies steadily increased from about two months prior to year-end until six weeks afterwards, indicating increasingly optimistic expectations about the contents of the financial statements. This suggests that the uncertainty preceding the release of the annual report was greater for the exception companies than it was for the match companies. This could have been related to "leaks" about either the financial condition of the companies or the possibilities of unfavorable opinions.

Nine weeks after year-end, when many companies would have released their financial statements, the CARs of the match companies receiving "clean" opinions stabilized at slightly below zero and remained relatively constant for the remainder of the period of study, thus indicating that the standard auditor's report had no effect on investor behavior. Figure 2 depicts this trend. Since the match companies have financial statements similar to companies receiving going concern exceptions, it is not surprising that the CARs after the release of the financial statements are negative. This indicates that there is some information content to the financial statements themselves.

The CARs for companies receiving going concern exceptions are relatively more volatile over time than their clean opinion counterparts. Although there was some leveling after week six, there was considerably more variability over time in the CARs of the exception companies. Also, the residuals were more negative for the exception companies, suggesting that investors were reacting negatively to the contents of the annual report. Since the financial statements of the exception companies are similar to the financial statements of the match companies, the most obvious differences in the two sets of financial packages is the auditor's report. It appears that investors are reacting to the auditor's report, or to nonfinancial contrary information upon which the report is

based, rather than simply to the financial statements.

Of course, going concern exceptions may affect a company's ability to obtain additional credit, and investors may have been reacting to the anticipation of more restrictive credit. This returns to the self-fulfilling prophecy issue. If an investor perceives that a going concern exception causes damage to a company's credit position by a greater degree than the financial statement ratios, this, in turn, will affect security price behavior.

Further studies are needed to examine the effect of a going concern exception on creditors' decisions. Would a company that otherwise may be able to obtain additional debt financing be denied on the basis of a going concern exception? If so, bankers might need more disclosure with respect to auditors' conclusions. In any event, a going concern exception does appear to signal increased difficulties in raising capital in the equity market.^Ω

NOTES

¹ American Institute of Certified Public Accountants, *Statement on Auditing Standards No. 34: The Auditor's Considerations When a Question Arises About an Entity's Continued Existence* (AICPA, 1981).

² E. I. Altman, "Financial Ratios, Discriminant Analysis and the Prediction of Failure," *Journal of Finance*, September 1968, pp. 589-609.

³ B. Lev, and J. A. Ohlson, "Market-Based Empirical Research in Accounting: A Review, Interpretation and Extension," *Journal of Accounting Research*, vol. 20, Supplement 1982, pp. 249-322.

⁴ M. Firth, "Qualified Audit Reports: Their Impact on Investment Decisions," *The Accounting Review*, July 1978, pp. 642-650.

⁵ E. F. Fama, L. Fisher, M. C. Jensen and R. Roll, "The Adjustment of Stock Prices to New Information," *International Economic Review*, February 1969, pp. 1-22.

⁶ The Market Model is defined as:

$$R_{it} = \alpha + \beta R_{mt} + \epsilon_{it}$$

where:

- R_{it} = $(P'_{it} - P'_{it-1}) / (P_{it-1})$ = The rate of return of security i in period t .
- P'_{it} = The price of security i , adjusted for dividends, splits and new offerings, at period t .
- P_{it} = The price of security i at period t .
- α = The intercept and slope of the linear relationship between R_{it} and R_{mt} .
- R_{mt} = The return on the market in period t .
- ϵ_{it} = The residual or the individual component of the return on security i in period t .

⁷ The paired t-test can be mathematically stated as:

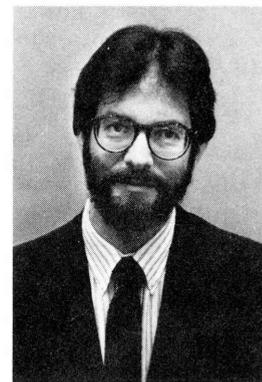
$$\frac{\bar{d}}{S_d / \sqrt{n}}$$

where:

- \bar{d} = mean difference
- S_d = the standard deviation
- n = the number of pairs



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Widespread Computerization and Automation of Business Operations

Part I: New Developments in Computer Technology, the Business Community and the Profession

Edited by Elise G. Jancura

One of the issues raised by the Future Issues Committee of the AICPA in its 1984 report, "Major Issues for the CPA Profession and the AICPA," was the following:

The widespread use of computers is changing the traditional client-CPA relationship, expanding the scope of services, fostering competition, and creating changes in the operating structure of CPA firms and businesses generally. Within the next two decades, the increasingly rapid growth in computer and information technology is expected to revolutionize business practice in all areas and create a host of new products and services.

The EDP Technology Research Subcommittee was asked by the Chairman of the Board of Directors of the AICPA to address this issue. The committee met over the next year and prepared a report submitted to the Board of Directors in September 1985. Members of the EDP Technology Research Subcommittee who prepared this report were:

John Lehman, Chairman (Touche Ross & Co.)
John G. Baab (Ernst & Whinney)
Robert D. Gilges (Peat, Marwick, Mitchell & Co.)

Elise G. Jancura (Cleveland State University)
James C. Kinard (The Ohio State University)
John T. Overbey (Western Carolina University)
Richard S. Robins (MONY—Mutual Life of N.Y.)
Trevor R. Stewart (Deloitte Haskins & Sells)
Arnold Wasserman (Coopers & Lybrand)

Two major sections of the report addressed the following topics: (1) the new developments in computer technology, the business community, and the profession; (2) the impact of these new developments on the profession. This article reproduces the first section of that report.

Introduction

The era we live in is being called the "information age." In the next few years, the computer will become a universal machine much as the calculator is today. Journals in fields outside of business and computers, as well as those inside these fields, speak of the information explosion, the information revolution, information as a resource, etc. Organizations have information

centers and chief information officers. Millions of people are using personal computers and terminals and mainframes in their daily work at their desk. In 1980, Aetna Life and Casualty had one terminal for every six employees, but by 1985, they had one terminal every two employees. IBM estimates that there are 20 million terminals in use today and that by 1990, the numbers will approximate 50 million. The principal users of these terminals are professionals and managers, clerical personnel.

The computer has moved from just being in the data processing shop to being in the office, the store, the school and the home as well. With that forward move, a drastic change has occurred in the nature of information processing and communicating equipment. For centuries, the processes of numeric calculation, test preparation, storage information, communication and illustration had all required separate pieces of equipment.

Today, with the integration of personal computers, electronic mail, voice input/output, word processing, graphics, etc., one unit performs all of these tasks. In 1983, there were 2.4 million personal computers sold in the United States. It is estimated that 10 million will be sold in 1990. If that is true and the increase is constant per year, there will be 52 million personal computers in use in the United States by 1990. Further, there is every likelihood that many of them will become part of interconnected networks.

The computer's ever increasing power, coupled with declining costs of technology, have made it possible for even the smallest company to now have computer power that was not in existence 30 years ago. To demonstrate this explosive growth of the technologies, consider that in 1972 an IBM System 370 Model 168 CPU sold for more than \$4 million. In 1982, there were a number of minicomputers that offered the same computing power for approximately \$15,000. This represents a 300 to 1 reduction in cost in only ten years. In 1985, this cost, for what is called a micro-computer, has declined further to only a few thousand dollars.

Today, in some manufacturing plants new computerized systems make it possible for a design engineer using computer aided design and manufacturing software (CAD/CAM) to

develop a new product, test it, make a blueprint, generate a program for computerized, numerically controlled machine tools to build tooling and enter a bill of material and route sheet into a database with only minimal human intervention. Further, automated retrieval storage systems have significantly reduced the need for material handlers. Similar improvements in white collar productivity are on the horizon and will impact the way CPAs see new business opportunities and manage their practice. The sub-committee has looked at current trends of emerging technologies in order to discuss what is foreseen to be the impact of computer technology on the accounting profession.

The implications of the information technology explosion are especially critical to the public accounting profession. Increasing competition within the profession and from outside the profession creates an essential need to operate more efficiently, to control the costs of services provided in the traditional audit and tax practices, and to expand the scope of services offered. This is especially true in those areas where clients are developing the ability to takeover, at a reasonable cost, some of the activities for which they previously relied on the public accounting firm—i.e., availability of economically feasible tax and financial analysis packages. In the tax area alone, inexpensive personal computers, tax software, and the public-utility database services (i.e., PHINET, LEXIS) make many clients more independent and/or cost conscious. This trend may be greatly accelerated as "expert systems" move into place, effectively profiling an alternative for professional services and expertise.

Information Processing Environments

Data processing encompasses a great variety of processing environments, equipment configurations and

Virtually all clients will have computerized functions requiring universal computer literacy.

software systems. Usually, large mainframe systems exist in organizations of sufficient size and scale of operations to justify a separate data processing department performing some degree of centralized processing. However, it must be remembered that mainframe installations can vary in size and scale from relatively small operations with very small DP staffs (sometimes no programmers) to very large organizations with large multiple operations geographically scattered and large specialized staffs, including programmers, analysts, database administrators, data communications specialists and computer operators.

The enormous growth in the use and availability of personal computers has significant implications for both the processes of organizational computing and of personal computing. Personal computers have also provided the tool for individual or personal computing tasks. The availability of the hardware and software (spread sheets, word processors, graphics, communication packages) systems, for personal computers at sufficiently low costs, make it economically feasible to use these systems for individual workstations. Thus, analysis requiring multiple iterations or multi-dimensional comparisons can be performed more rapidly and on a much larger scale than previously possible. Documents can be prepared, revised and illustrated with effective graphics much more rapidly and effectively.

Another impact of the growth in personal computers has been the significant reduction in the scale of operations for which in-house computerization of the accounting and management information systems is not only feasible but advantageous. This means that virtually all clients—large and small—will have computerized functions requiring universal computer literacy within the profession.

Micro-Mainframe Interface

Until the advent of micro-computers and low cost fixed storage devices, data stored on mini-computer or mainframe hosts was relatively safe and not easily transportable. Access to a tape drive was necessary, and communications capabilities were severely limited. Today, this is no longer true. Whole files of several megabytes can be transmitted between microcomputers and large machines in a matter of

Approximately 2,000 public databases are in existence today.

minutes. Thus, micro-mainframe interface technology has significant potential for expansion of information networks and increased effectiveness in these networks. This connection provides increased efficiencies for the movement of data in both directions between data sources and organizational databases.

Another important characteristic of the micro-mainframe interface is the ability to provide individual users effective access to organizational data for timely analysis and flexible reporting needs. The advantage of micros as a powerful individual tool for analysis, simulation and report generation is often limited by the availability of data, where the data are available, or the practical problem of entering very large volumes of data. A micro or personal computer connected to a larger computer can provide users independent access to this existing data. Once the information has been accessed or down loaded, the user can perform analysis and generate individually tailored reports.

The micro is an extremely powerful and flexible tool for an information network. It can make data capture feasible at its source, can facilitate editing and processing of data close to the source for local use even as the data are being transmitted to central files or being distributed to a network. A network using micros can use them as terminals or can allow them to be used independently as local processing facilities. While this design philosophy is not unique to micros, the small scale at which micros are feasible allows great latitude in designing networks.

Micro-mainframe interface technology has several implications for public accounting. It can enhance testing procedures and audit independence by giving auditors using micros direct access to client data. However, it increases the complexity of the system being evaluated and thus increases

the technical competence required by the auditor.

New Software Tools

As the amount of technical expertise required by users of information technology has been reduced, thus encouraging its widespread use, the technology itself has become much more complex. User friendly software may make these systems "user transparent," but they encompass more sophisticated software and hardware components and much more complex system architecture. The advances in computer technology have resulted in computer users being able to access data stored throughout an organization's computer resources and format and tailor it to their own needs.

The new software tools make it possible for users without technical training in computer design or in programming techniques to effectively use the computer and thus benefit from the speed and flexibility it can provide. The computer has become a utility whose use is beneficial, even though the user does not fully understand how it works. Software tools can also be used to improve the productivity of technically qualified personnel in the application and systems development process.

Some software can be used to improve the efficiency of application development, while other kinds of software requiring no great expertise are being made available to users for reporting or analytical needs. A new organizational unit, called the information center, is evolving in which the EDP professional provides the basic data structure, and end users are performing the access and reporting functions. Thus, the productivity of an information system can be significantly enhanced by making information

more available to a greater range of users and allowing developmental costs of a system to be better matched to the needs of the users. The implications for control of such an environment raise the need for an expanded set of access and processing controls. In this environment, inexperienced users can successfully access and use organizational data. This eliminates a former protection previously available when lack of technical expertise provided an inherent protective barrier around the information system.

Availability of Public Databases

Data has always been the raw material from which decisions are made, and today's management decisions are becoming increasingly complex and time dependent and require a wide range of data to be available on short notice. To meet this need, a new type of service has developed—the public database. A public database is a data source that can be accessed by means of a personal computer and a telephone.

There are approximately 2,000 public databases in existence today covering a wide range of topics. Examples of the types of information available include financial data and reports, periodical references and abstracts covering most professional fields, credit reports, sports news and airline schedules. In other words, almost any type of information can be obtained from one of these sources. There are also service organizations which subscribe to hundreds of databases and perform research for a fee. Directories of these public databases are also available.

Improved Telecommunications in Local Area Networks

Faster and more versatile voice and data communications will be available for firms and their clients to use. The present inability to transfer data between computers will be eliminated either by computerized network interface protocol emulators or industry standardization. There will be an acceleration of integration occurring in businesses as they deal with the convergence of data, voice, image and word processing technologies in the office environment.

CPAs and their clients will have integrated office networks without duplicate equipment and communication circuits.

Improved local area networks for personal computers, which allow them to share resources and access other computers in an organization or outside databases, are starting to appear. As organizations add more computers, there will be a need to link them so that data can be shared throughout the enterprise. The growth of local area networks and front-end communications devices will enable individually developed applications and data to be made available to other departments within a company or firm. Local area networks will accommodate both voice and data, enabling them to be switched throughout the computer-controlled local area and voice communication networks.

Local area networks are beginning to appear in "smart" buildings in Los Angeles, California (Grand Financial Plaza), Chicago, Illinois (One Financial Place), Arlington, Virginia (Crystal Gateway III), and Hartford, Connecticut (City Place). Others are under construction. In these smart buildings, desktop terminals or mini-computers are linked to centralized mainframe computers which offer access to public data bases and are available to perform other computing functions for the tenants. Because these LANs are interfaced with the telephone system, access could be allowed from any remote location.

For CPAs, this means they will be able to access their own or client databases without regard to present day equipment compatibility limitations. The merging of voice and data communication will reduce the need for redundant voice and data circuits as well as allow communication of simultaneous voice-over-data transmission. This will allow CPAs and their clients to have integrated office networks without duplicate equipment and communication circuits.

Faster and more versatile voice and data communications will be available for use.

Artificial Intelligence

Hardly a day passes without articles and meetings about the potential impact of artificial intelligence (AI) and expert systems on the job market. While these systems are, for the most part, still in the research and development phase, their development is occurring at an increasing rate.

International Data Corporation (IDC) provides a fairly good working definition of artificial intelligence: "the programming tools and techniques used in modeling human intelligence, as well as the commercial products evolving from these tools and techniques." Defined as such, one can view AI, not as a revolution, but as a part of an evolution towards more powerful and sophisticated computer systems.

Now that the first 20 years of research to develop computer systems which can emulate human thought are completed, movement is into a second stage of an emerging commercial market for AI-based products. The commercial market for AI software in 1984 was probably only \$15 million, but by 1990 it is expected to grow to \$700 million, with another \$350 million to be spent on work stations and development hardware. A.D. Little believes we can expect an \$11 billion market as ever increasing chip densities will allow additional AI applications to be made available. In fact, micro-processor and memory storage circuitry is becoming so complex that one of the first applications of AI is in the design of these new circuits. Three areas of AI are more advanced in terms of existing and potential commercial applications: natural language, expert systems and robotics. The first two of these will be of relevance to the profession as they offer the potential of allowing CPAs and their staffs to manage and process information more efficiently.

Natural language programs, for example, are used to improve the man-machine interface by analyzing a question posed by a person in his or her natural language and then converting it to a format a computer can understand. Expert systems seek to emulate what the most knowledgeable persons in a particular area of knowledge know and transfer that knowledge via an AI program into a list of rules that can be recalled in order

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Image processing permits the entry of data into the processing system, without keyboarding, through the use of scanners.

to replicate an expert's decision.

Although significant developmental efforts are ahead, the basic tools of AI are in the marketplace, enabling businesses to invest and fund further research and development. The profit potential is so great that it will encourage development by any organizations who have the capital and whose chief resources are people and information. One of the areas of early impact of AI will be in software engineering. Particularly in the systems design stage of software development, tools are available which generate applications. Also, there are others which, by use of logic-based programming, render systems analysis so efficient that separate specifications and programs are not needed. Every tool and advantage that new information technologies can offer us to expedite, clarify and reliably engineer software will have a major impact on our MAS, tax and computer audit practices. The CPA will need to be on top of all these tools and technologies in order to deal with them appropriately when we encounter them in the client environment.

This leads to one of the most promising applications of AI—Intelligent Computer-Aided Instruction (ICAI). It is more effective than conventional instruction. It could be an important aid to meeting our increased requirements for professional and technical knowledge.

Voice recognition technology is one of the difficult problem areas in AI research. Currently, progress is being reported from a variety of organizations. But the bottom line is that economics are currently prohibitive for anything near full language capabilities. (Now a system which can recognize 1,000 words costs \$3,000 purchased in large quantities.) Although limited-function voice

recognition is in its second generation development stage, only a speaker-dependent capability with limited vocabulary is now available. However, the same dramatic cost reductions that have occurred in other areas of technology can be expected in voice recognition.

Image Processing

Digitized image processing is the technology for transforming text and images from a paper document into binary data, understood by a computer. The main appeal of this technology is the potential for eliminating many of the millions of paper documents produced by U.S. businesses each day. Image processing could offer significant economies to professional firms by permitting the entry of client data into the tax or financial processing system without any keyboarding through the use of low cost scanners that can recognize text. Further, a permanent file will be created at the same time.

By the end of the decade, optical laser disk storage systems will be a reality. These stable, low-cost devices, coupled with increased data address capacity and the capabilities of 32-bit micro-processors with improved graphics processing should allow for



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the integration of text (office) and normal data processing files. Whole documents will be able to be stored digitally, as well as be available for subsequent manipulation by programs. New methods of data entry will be practical and will eliminate much of the present transformation, i.e., re-keying of data. New software will be developed to enable selection of text in the computerized databases. Fiber optic links, capable of transmitting digitally encoded documents at speeds of millions of bits per second (compared to existing computer networks which typically run at 9,600 bits per second), will be subject to continued price performance improvements. The recent introduction of low-cost laser printers and scanners, coupled with improved read-write media, should enable CPAs to witness these developments in their clients' offices within the next few years and in their own CPA's office by the end of the decade.

Summary

The subcommittee believes that many of the technological trends that will impact the profession are now well established. The views that the subcommittee has expressed in its report are based on the personal and professional observations of its members, all of whom are actively involved in EDP and information technology within their respective firms or universities.

A compelling case for a significant response by the profession to changes in information technology can be made if one accepts one or more of the following propositions:

- a. The rate of technological change, particularly the cost/benefit characteristics of such change, is currently high and will increase.
- b. The changing technology has potential business and competitive implications which will impact some areas of current practice and the structure and economics of future practice.
- c. Since the mid-1950s, the profession has been in a reactive, catch-up posture with the result that some professional mechanisms are badly in need of a major overhaul, not simply a minor tune-up. Consequently, many CPAs are now members of technology-based associations and the CPA exam no longer reflects what a CPA will encounter in practice.

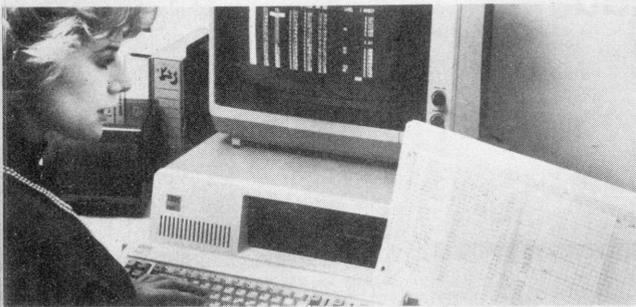
Part II, covering the impact of these new developments on the profession will appear in the October issue. Ω

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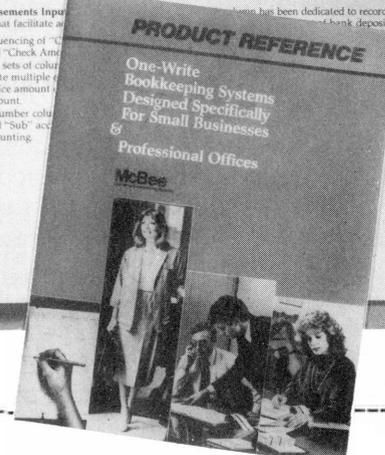


Accountant Market

DATE		DESCRIPTION	AMOUNT	CHECK NO.	BANK BALANCE	CHECK BALANCE
10/10	10/10	General Ledger	100.00		100.00	100.00
10/11	10/11	Professional Office Supplies	25.00	101	75.00	75.00
10/12	10/12	Travel Expenses	150.00	102	125.00	125.00
10/13	10/13	Advertising	75.00	103	50.00	50.00
10/14	10/14	Telephone	50.00	104	0.00	0.00
10/15	10/15	Postage	25.00	105	25.00	25.00
10/16	10/16	Bank of America	100.00	106	125.00	125.00
10/17	10/17	McBee Systems	100.00	107	25.00	25.00
10/18	10/18	McBee Systems	100.00	108	125.00	125.00
10/19	10/19	McBee Systems	100.00	109	25.00	25.00
10/20	10/20	McBee Systems	100.00	110	125.00	125.00
10/21	10/21	McBee Systems	100.00	111	25.00	25.00
10/22	10/22	McBee Systems	100.00	112	125.00	125.00
10/23	10/23	McBee Systems	100.00	113	25.00	25.00
10/24	10/24	McBee Systems	100.00	114	125.00	125.00
10/25	10/25	McBee Systems	100.00	115	25.00	25.00
10/26	10/26	McBee Systems	100.00	116	125.00	125.00
10/27	10/27	McBee Systems	100.00	117	25.00	25.00
10/28	10/28	McBee Systems	100.00	118	125.00	125.00
10/29	10/29	McBee Systems	100.00	119	25.00	25.00
10/30	10/30	McBee Systems	100.00	120	125.00	125.00
10/31	10/31	McBee Systems	100.00	121	25.00	25.00
11/01	11/01	McBee Systems	100.00	122	125.00	125.00
11/02	11/02	McBee Systems	100.00	123	25.00	25.00
11/03	11/03	McBee Systems	100.00	124	125.00	125.00
11/04	11/04	McBee Systems	100.00	125	25.00	25.00
11/05	11/05	McBee Systems	100.00	126	125.00	125.00
11/06	11/06	McBee Systems	100.00	127	25.00	25.00
11/07	11/07	McBee Systems	100.00	128	125.00	125.00
11/08	11/08	McBee Systems	100.00	129	25.00	25.00
11/09	11/09	McBee Systems	100.00	130	125.00	125.00
11/10	11/10	McBee Systems	100.00	131	25.00	25.00
11/11	11/11	McBee Systems	100.00	132	125.00	125.00
11/12	11/12	McBee Systems	100.00	133	25.00	25.00
11/13	11/13	McBee Systems	100.00	134	125.00	125.00
11/14	11/14	McBee Systems	100.00	135	25.00	25.00
11/15	11/15	McBee Systems	100.00	136	125.00	125.00
11/16	11/16	McBee Systems	100.00	137	25.00	25.00
11/17	11/17	McBee Systems	100.00	138	125.00	125.00
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11/20	11/20	McBee Systems	100.00	141	25.00	25.00
11/21	11/21	McBee Systems	100.00	142	125.00	125.00
11/22	11/22	McBee Systems	100.00	143	25.00	25.00
11/23	11/23	McBee Systems	100.00	144	125.00	125.00
11/24	11/24	McBee Systems	100.00	145	25.00	25.00
11/25	11/25	McBee Systems	100.00	146	125.00	125.00
11/26	11/26	McBee Systems	100.00	147	25.00	25.00
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11/30	11/30	McBee Systems	100.00	151	25.00	25.00
12/01	12/01	McBee Systems	100.00	152	125.00	125.00
12/02	12/02	McBee Systems	100.00	153	25.00	25.00
12/03	12/03	McBee Systems	100.00	154	125.00	125.00
12/04	12/04	McBee Systems	100.00	155	25.00	25.00
12/05	12/05	McBee Systems	100.00	156	125.00	125.00
12/06	12/06	McBee Systems	100.00	157	25.00	25.00
12/07	12/07	McBee Systems	100.00	158	125.00	125.00
12/08	12/08	McBee Systems	100.00	159	25.00	25.00
12/09	12/09	McBee Systems	100.00	160	125.00	125.00
12/10	12/10	McBee Systems	100.00	161	25.00	25.00
12/11	12/11	McBee Systems	100.00	162	125.00	125.00
12/12	12/12	McBee Systems	100.00	163	25.00	25.00
12/13	12/13	McBee Systems	100.00	164	125.00	125.00
12/14	12/14	McBee Systems	100.00	165	25.00	25.00
12/15	12/15	McBee Systems	100.00	166	125.00	125.00
12/16	12/16	McBee Systems	100.00	167	25.00	25.00
12/17	12/17	McBee Systems	100.00	168	125.00	125.00
12/18	12/18	McBee Systems	100.00	169	25.00	25.00
12/19	12/19	McBee Systems	100.00	170	125.00	125.00
12/20	12/20	McBee Systems	100.00	171	25.00	25.00
12/21	12/21	McBee Systems	100.00	172	125.00	125.00
12/22	12/22	McBee Systems	100.00	173	25.00	25.00
12/23	12/23	McBee Systems	100.00	174	125.00	125.00
12/24	12/24	McBee Systems	100.00	175	25.00	25.00
12/25	12/25	McBee Systems	100.00	176	125.00	125.00
12/26	12/26	McBee Systems	100.00	177	25.00	25.00
12/27	12/27	McBee Systems	100.00	178	125.00	125.00
12/28	12/28	McBee Systems	100.00	179	25.00	25.00
12/29	12/29	McBee Systems	100.00	180	125.00	125.00
12/30	12/30	McBee Systems	100.00	181	25.00	25.00
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- The major sequencing of "Check Amounts" and "Check Amounts"
- Three identical sets of color-coded boxes to accommodate multiple entries when the invoice amount is less than the check stubs to ride herd on.
- The account number color-coded "General" and "Sub" accounts for branch accounting.

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Developing A Career Plan

Specific Objectives Help Individuals Achieve Payoff

By Ira S. Greenberg and Greg M. Thibadoux

Developing a career plan is one way for accountants to establish an increased degree of control over their destiny in the work place. Only rarely are decisions to change jobs based on established goals and objectives. Often accountants ignore the planning process and hope that their talents will be recognized and rewarded. Career planning is important even for those who undergo ever-changing sets of events and circumstances which may alter previously defined goals. The purpose of this article is to describe the advantages of career planning, outline the steps an individual should take in developing a career plan in a constantly changing environment, and discuss some of the typical career paths available to accountants.

Advantages of Career Planning

Why should an individual develop a career plan? The rationale centers upon a series of concepts related to individual development and change. These concepts describe why personal career planning may have real payoffs for those who engage in it.

1. Change comes best when individuals have an internalized motive to change. For example, you might

say, "I can't do anything about my career until my boss does something." In this case you are relying on an external force for change. While it may be accurate that your boss must do something in order for something to happen for you, it also true that there are things you can do to hasten the boss's doing something. You can rely upon yourself to give direction to your career if you want to.

2. Specific rather than general objectives allow individuals to change best. Why? General objectives give only partial information about where you are heading. By establishing specific objectives you can seek specific feedback on how you are doing.

3. People have a feeling of satisfaction when they know that change is coming in a desired direction. Simply stated, it makes us feel good to say, "Look what I did." Self-esteem is never higher than when one is satisfied with performance relative to a goal. This gives you more confidence to achieve and encourages you to attempt to enter other areas for accomplishment.

4. People need feedback to change. The more defined one's personal objectives are, the more specific the

feedback becomes. Specific feedback is much more directly related to one's behavior and objective and therefore provides better information.

5. Individuals change best when changes are timely and gradual. A decision made today about a career change can usually not be achieved by tomorrow. Change takes time and patience. The process is often an evolutionary one in which a series of events leads to a desired goal.

Developing A Career Plan

A model for developing a career plan consists of a series of exercises that may be of help in determining the steps required to devise a career plan. By completing the series of exercises, you will be able to determine which activities you would like to engage in and the steps you must take to obtain the necessary skills required for those activities.

Exercise 1—Self-Analysis. The first step in developing your career plan is to assess your self image since any career plan must be tailored to your needs, values, interests, skills, and attitudes. Begin your self-assessment by answering these questions:

- What are my needs of work, home, and in the community?
- What things do I value the most?
- What are my specific interests?
- What are my best skills and aptitudes?
- What are my particular weaknesses?
- What are the skills that I would like to acquire?
- What accomplishments in the past have given me the most satisfaction?
- What tasks do I least like to do?
- What are my attitudes toward my colleagues?

Personal career planning by accounts may have real payoffs

Young staff accountants who do not remain with the firm are forced to revise their career plans.

Exercise 2 Activity Choices		
Immediate (within 6-12 months)	Short-term (1-3 years from now)	Long-term (5-10 years from now)
Example: Audit a hospital	Perform management advisory services for a hospital	Partner in charge of management advisory services

- What tasks do I least like to do?
- What are my attitudes toward my colleagues?

Exercise 2—Activity Choices. The next step in developing your career plan is to decide what activities you would like to do in the future. This decision should be based on your analysis of the environment and your own particular interests. The activities that you choose in this exercise should be very specific. For example, one activity that you might want to engage in immediately is to work on the audit of a hospital, and in the short-term to perform management advisory services to hospitals.

EXERCISE 3 Job Opportunities		
Immediate	Short-term	Long-term
Example: Audit a hospital	Perform management advisory services for a hospital	Partner in charge of management advisory services

Exercise 3—Defining Your Career Opportunities. The activities that you selected in Exercise 2 must be matched against the professional choices that are available. This exercise will require some research on your part. You may need to draw on others' experiences (particularly for the long-range opportunities) as well as the relevant professional literature. Some of the activities that you would prefer doing (as defined in Exercise 2) may not be available. However, given the present almost unlimited opportunities in accounting, there will probably be little difference between your preferences and your opportunities.

Exercise 4—Job Requirements. Determine what specific aptitudes, interests, and skills will be needed to satisfy the requirements of your career

EXERCISE 4 Job Requirements			
Job Requirements	Immediate Choices	Short-term Choices	Long-term Choices
Required skills and aptitudes	Learn hospital audit techniques	Take in-house course on hospital auditing	Communications and supervisory
Necessary interest and values	Interested in medical field	Same	Same
Necessary personality and temperament	Patience, ability to supervise people	Develop communication skills	Same
Educational requirements	Completed	Completed	Take management skills seminars
Time requirements	6-12 months	2-3 years	7-10 years

EXERCISE 5
Areas of Match and Conflict

	Immediate Choices	Short-term Choices	Long-term Choices
AREAS OF MATCH	Current skills Interests Education	Education Interests	Interests
AREAS OF CONFLICT	None	Technical skills	Communication skills People skills

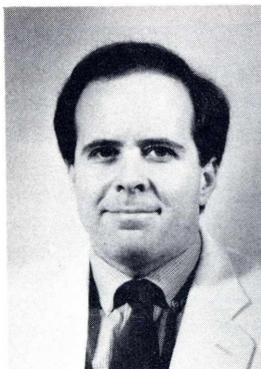
opportunities as defined in Exercise 3. You will need to analyze job requirements for each of your choices in the three different time frames. If you are unsure about certain job requirements, you may need to talk with your colleagues or perhaps persons working in different environments or for different firms.

Exercise 5—Matching Job Requirements and Your Self-Assessment. Next make a realistic comparison between your self-assessment (Exercise 1) and the requirements of your career choices (Exercise 4). You will want to note areas of match and conflict between your skills, aptitudes, interests, values and the job requirements. For example, you may be capable of immediately auditing a hospital (area of match) but in the short-term not have the skills to provide management advisory services to hospitals (area of conflict).

Exercise 6—Determining Areas of Change. If you have identified areas of conflict, then you will need to make the appropriate changes in yourself. You may need to upgrade your skills or reconsider certain values and interests. In Exercise 6, you will determine the required changes for each area of conflict in terms of changes in skills, values, and interest.

Exercise 7. The required changes that you identified in Exercise 6 are your career strategies. In working toward the acquisition of needed skills and aptitudes, interest and values, you are directly working toward attainment of your immediate, short-term and long-term goals (activity choice).

Your strategy is not complete without a commitment for achievement. In Exercise 7, list the strategies identified in Exercise 6, a realistic date for completion, and the actual date of completion. This document is your career plan.



Ira S. Greenberg, Ph.D., CPA, is assistant professor at Temple University, Philadelphia. He obtained his Ph.D. in accounting at the University of Missouri and has published in various accounting journals.

Career Paths

A student who is approaching completion of an undergraduate degree program in accounting is faced with the first of many important career choices. Should (s)he accept a position

in public accounting, cost accounting, governmental, etc.? Many students choose public accounting, believing that it provides the widest range of experience in the early years of a career.

Progress in a public accounting firm is extremely structured from staff accountant to partner. Transfers from the audit staff to a tax department or management consulting are usually available. Promotion to the next level in the firm, however, is largely dependent upon time at the previous level if the individual's technical skills are acceptable. Most public accounting firms offer in-house educational programs which support individual career development.

Very few staff accountants remain with the firm long enough to be considered for promotion to the partner level. This fact forces many young accountants to revise their original career plan. The step out of public accounting can come after only a few years with the firm or after the individual has become a manager (usually five or more years). Transition from public accounting for those with less than five years of experience appears to provide very little difficulty if the job does not require significant management responsibilities. The manager in public accounting faces more difficult transition problems. To industry, the market value of a CPA does not grow commensurately with years of experience. Potential employers appear to be reluctant to pay high salaries to an individual who lacks industry experience. Many managers find their transition smoother if they seek employment with an audit client. The manager is knowledgeable of the company, and the company is knowledgeable about the manager.

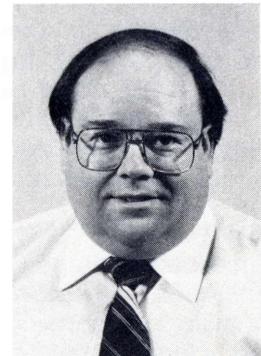
Conclusion—Your Personal Career Plan

Accountants tend to react to new job possibilities rather than to plan for them. The active and planned pursuit of career opportunities is the key to controlling your destiny. Instead of letting things happen to you, you can make them happen for you.Ω

EXERCISE 6 Required Changes			
Areas of conflict	Required changes		
	Skills and aptitudes	Interest	Values
Technical skills	Develop through in-house courses, seminars, and workshops	None	None

EXERCISE 7 Commitment to Performance Standards		
Strategies	Expected Date of Completion	Actual Date of Completion
Develop the necessary technical skills	2-3 years	

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Forensic Accounting

Is This The Future For The Smaller Practice?

By Wanda W. Ginner

If you want to get an excited conversation going in a gathering of accountants, ask whether anyone in the room is doing any "forensic accounting." Almost every CPA in the room will say they are doing some (even if they are not). Those who admit they have not had any experience with forensic accounting will usually say they are "getting into it."

In the last two years, California CPAs have seen a significant increase in the forensic accounting course material made available to CPAs through course presenters including the California CPA Foundation. The 1985-86 Western States Catalog of Continuing Professional Education for CPAs lists at least sixteen courses specifically relating to forensic accounting (and five of these are "new"); and many of the remaining courses contain elements of forensic accounting in the course discussions.

What is all the excitement about?

Definition

The American Heritage Dictionary (Houghton Mifflin, 1982, Boston) defines forensic as "pertaining to or employed in legal proceedings or argumentation." In its current form, forensic accounting is simply accounting concepts and/or information presented in a form suitable for a courtroom. With the recent increase in

litigation of all kinds, and the increasing emphasis on financial damage claims, accounting has suddenly become a key element of many lawsuits, and forensic accounting has become the darling of the accounting profession. Unfortunately however, for both the profession and the clients, not everyone who practices forensic accounting should be doing so.

What does it take to get into forensic accounting? More importantly, is it the right step for CPAs in smaller "non-Big-8" practices? The purpose of this article is to analyze the risks and rewards of such a step, and to briefly discuss the methods smaller CPA firms can use to develop a forensic accounting practice, or to expand one which has already begun if the decision is made to go forward.

Pros and Cons

For CPAs in smaller practices, forensic accounting appears to be a relatively low-risk way to increase professional income, to enhance public image, and to enjoy new challenges. There does not seem to be too many arguments against it, at first glance. However, the uninitiated professional should carefully examine the cons as well as the pros before deciding to move into the forensic accounting field.

Briefly, the arguments in favor of beginning or expanding a forensic accounting practice are the following:

- Forensic accounting is a growing practice area which promises to provide increased income and a high per-hour yield.
- CPAs have a real feeling of client service in many forensic accounting engagements and the clients can be very appreciative of work visibly well done.
- The field is exciting, the work is challenging and CPAs get to exercise skills—innovation, creativity and imagination—not always associated with more routine accounting work; personal satisfaction can be great.
- Public image of the firm can be greatly enhanced and this, in turn, can bring in new clients and increase the firm's ability to attract new employees and retain existing staff.
- New marketing strategies can be employed, new professional contacts made, and personal horizons broadened.

Many CPAs in smaller firms can quote a few more reasons for getting involved in forensic accounting. Less enthusiastically, some of those same CPAs can even identify one or two problems with a forensic accounting practice. For that reason, the "cons" listed below are discussed a little more fully than the "pros."

- Forensic accounting is *not* just the same old accounting skills moved into the courtroom. A new set of concepts must be learned, new skills developed or honed, and old rules brought to bear on new situations. For example, many of the exhibits CPAs are asked to prepare for courtroom use may well fall into the "special report" category and require specific report language and specific procedures in preparation. In addition, there is a whole new set of rules to learn—what the CPA "expert witness" can and cannot do, how to properly present information for the Court, and what specific deadlines and timetables, must be met.
- Scheduling forensic accounting cases can be quite disruptive to the rest of a CPA practice. Courtroom schedules seldom defer to tax season, for example, and a case started safely in September's

slower season can easily end up in court in the middle of March, when smaller practice units can least afford to carve out several days for meetings with clients or attorneys and/or courtroom testimony.

- In the initial cases worked on, the CPA can end up performing a *dis-service* to the client if the CPA's lack of experience results in poorly designed exhibits, poor quality courtroom testimony, or badly presented information which confuses or misleads a judge and results in a bad decision for the client.
- Professional liability exposure can be severe if the client "loses" and is looking for someone to blame. An inexperienced CPA is very vulnerable because the lack of experience may have resulted in some error, however small, which the client can use as a starting point for malpractice action. Failure of the CPA to identify forensic accounting on professional liability insurance applications can even result in subsequent attempts by the insurance carrier to deny coverage.
- Despite its potential for increased income and high per-hour yield, forensic accounting is seldom work which can be done by staff; and since many smaller practices have workloads which are already "top heavy," this increased time demand on higher level talent just further skews the workload.
- Inexperienced CPAs frequently run into problems with billing and collection in forensic accounting engagements, especially if the client "loses." Here again, new rules have to be learned; and failure of the CPA to take a firm approach regarding billing and collection procedures may result in the appearance of "taint" in the testimony or in noncollection of the fees. Cross-examining attorneys love to ask a CPA on the stand if their testimony is determined by the outcome of the trial—that is, whether the client's ability to pay is in any way dependent on a favorable decision.
- New marketing strategies take time and effort, and do not pay off immediately. A great deal of time and money can be spent without results and the smaller practice units are least able to use limited resources on expansion efforts.

The Marketing Effort

First, and most important, the practice must be ready, willing *and able* to serve the new clientele. Once the decision is made to develop or expand a forensic accounting practice, and a specific marketing plan has been drawn up (discussed in more detail below), the CPA would be well-advised to spend time in a local courtroom, watching other expert witnesses testify and watching attorneys. This may seem to be a time-consuming effort, but it is probably the most important first step. By watching other expert witnesses in court, CPAs can learn a great deal about many things: how to behave in court and on the witness stand; what expert witnesses are and are not allowed to do; what information and techniques appear to be most appreciated by judges and/or juries and most understood; and what does not seem to go over well. Just as importantly, the CPA can learn the functions of various courtroom personnel, and the layout of the courtrooms including the location of important facilities—ancillary (work and conference) rooms, copying facilities, and restrooms and water fountains. (This latter knowledge can turn out to be a life-saver in the middle of a hectic trial!)

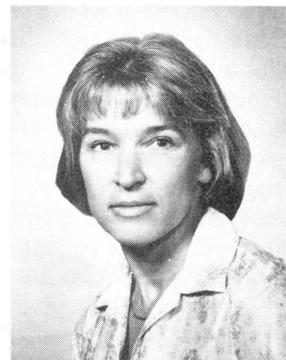
Watching other expert witnesses and attorneys at work in the courtroom has two beneficial results. First, the CPA gets a level of familiarity with the facility and people and processes that can have a calming effect the first time on-the-witness-stand testimony is presented. Everyone gets some stage fright, even after years of experience, but knowing something about what happens next makes it easier to deal with that stage fright. (Major law firms routinely send their new or junior employees to the courtroom to watch the senior members of the firm in action—for some of the very reasons outlined in this paragraph.) As a second benefit, the CPA can see firsthand which attorneys appear to be efficient and organized and well-prepared in the courtroom. This knowledge can help CPAs to avoid working with attorneys who are sloppy or unprepared—remember, it is the attorney, and not the CPA, who directs the case and even the best-prepared expert witness can be tripped up in court by a poorly prepared attorney.

The first-hand observation process may well impact on the firm's decision

to begin or to expand a forensic accounting practice. One important decision for each individual CPA to make as part of this observation process is an honest self-assessment: "Do I really have the knowledge and skills to do this work? Do I have a good speaking style—concise, professional, and coherent—or do I speak "accounting language" all the time so that lay people do not understand me?" No matter how knowledgeable a CPA may be, failure to communicate that knowledge to a judge or jury can result in an unfavorable decision for the client. The firm may have to make some painful decisions about who can and who cannot do forensic accounting work. (Note: This article assumes that the CPA has sufficient technical skill to perform the task undertaken—if this assumption is incorrect, the CPA *should not undertake the engagement.*)

With the decision made to enter or to expand forensic accounting, a marketing plan should be developed and put in writing. It need not be formal or extensive but it must be sufficiently structured that there are goals,

MORE ON PAGE 29.



Wanda W. Ginner, CPA, received her certificate in 1969 and worked with "non-Big-8" firms until she established her own practice in 1971. In 1983, she merged her firm with that of Moss Adams and became a partner in a three-state regional CPA firm. Her forensic accounting experience began ten years ago and she now limits her practice to these engagements.

Microcomputers and Data Communications

Applications and Opportunities For Accountants

By Benny R. Copeland, Sharon Garrison, and K.K. Raman

Accountants are being forced to become familiar with data communications techniques for microcomputers. Many accountants are already routinely using microcomputers to access various types of data communications systems every day, perhaps without even knowing all the types of systems they actually use. It is not unusual for an accountant to start the day by signing on to a computer terminal and being greeted by a list of messages and perhaps an agenda for the day. Most likely, the retrieval of messages is accomplished through a networking system where various terminals in the organization are linked together. The next task of the day might be to set up a worksheet and manipulate data on a stand-alone microcomputer. Once the worksheet is complete, the accountant may then load the results into the company's mainframe computer. Or, perhaps the accountant must plan for a business trip. By using a commercial database, the accountant can check airline schedules, book flights, make hotel reservations, and even get a list of good restaurants in the area.

All of the above tasks involve data

communications, and all can be performed using the same microcomputer, but all utilize very different types of data communications systems.

Accountants are discovering that no longer do they make exclusive use of mainframe computers as "centralized" or "decentralized" systems. Rather, they use different types of computer systems based on the task to be performed. The alternative systems may be called "contingent systems"—computer systems which can be selected for use according to the unique circumstances of the function to be performed. In the next few months, even more will be heard

Data networks consist of cables and control devices that connect mainframes, micros, terminals and printers.

about contingent technologies as additional companies enter the field of data communications and networking and seek to market this technology to business customers.¹

To fully understand the potential of such technology, it is necessary to have a working knowledge of local area networks, videotext and videotext information systems, and some of the commercial databases now available. The objective of this article is to discuss data communications, or "telecommunications" as it is frequently referred to, and to indicate some practical applications of this technology to the professional accountant.

Microcomputer Networks

Data networks consist of electronic cables and control devices that connect mainframe computers, microcomputers, terminals, and other devices such as printers, thereby allowing them to communicate directly with one another.

The primary need for a microcomputer network is indicated when two or more employees need to work with the same data base. Historically, the solution has been for the employees to exchange disks. Or the employees duplicate the data base and work on the data base simultaneously. The problem that may arise is confusion as to which of the copies is the "correct" data base. Further, with several people using the same data base, no one individual may be willing to take responsibility for maintaining a current copy of the data base or for assuming a proper back-up of the data base.

Another reason for creating a network is the need for several microcomputers to share a common peripheral, such as a high-speed printer. The decision to create a network is subject to analysis by using standard capital budgeting techniques. Building a network to permit the sharing of peripherals may or may not be cost beneficial. However, the matter of shared files does not lend itself to such analysis. If several microcomputers need access to a common data base, then a network becomes almost essential.²

While a network may appear simple in concept—"just hook the microcomputers together"—the technology is relatively complex. There are two primary technologies available for use at present: digitized PBXs using twisted-wire technology, and Local Area

Networks, called LANs, using coaxial cable and packet switching technology. The proponents of each cite certain advantages, and also point out claimed disadvantages of the other system.

Digital PBX. A PBX is, of course, the old familiar telephone switchboard. However, modern digital PBXs have the capability of carrying data as well as voice transmissions. Proponents of PBX technology claim several advantages. First, the technology is relatively simple, consisting primarily of a pair of twisted wires running from the central switch to each device on the network. Because the system is digital rather than analog, a MODEM (MODulator-DEMODulator) is unnecessary. Only a relatively inexpensive interface is required. Second, additional devices can be added relatively inexpensively, requiring only that a pair of wires be run from the central switch to the new device. And finally, the PBX is the only system which allows concurrent transmission of both data and voice.

Modern digital PBXs carry data as well as voice transmissions.

Opponents of the PBX system point out that the system must shut down whenever the central switch goes down, as there is no distributed switching ability. Furthermore, when the limit of the PBX is reached, it becomes very expensive to expand the capability of the system. Also, if both voice and data transmission are desired, additional pairs of wires of multiplexing equipment may be required, increasing the cost significantly.

Local Area Networks. Proponents of the coaxial Local Area Network also cite numerous advantages. First, only a single cable is required, with each device (microcomputer, printer, etc.) attached to it, whereas with the PBX system a pair of twisted wires must be

run from the central switch to each individual device. Thus, the LAN is easier to expand, since new devices can be connected to the same cable. Secondly, the transmission rate is several times higher for the LAN than for the PBX, making it more suitable for continuous use than a PBX system. Opponents of the LAN point out that this higher transmission rate is usually achieved through packet switching technology, which is fairly expensive. Finally, LAN proponents point out the advantage of a "layered" communications system, which makes the addition of new technology or the expansion of the network much easier than with the PBX system.³

The flow of communications through the LAN is coordinated by a device known as a "controller". This controller functions somewhat like a traffic policeman, directing traffic and cleaning-up after collisions between messages. In addition to the controller, some networks require that each device connected to the network have an interface, something like the MODEM used to connect a microcomputer to an analog telephone line. The interface may be built inside the device, or it may be located in a box alongside the device.

Network Benefits. Until network technology was developed, microcomputers were limited to communicating only with mainframe computers, or to one other device using the mainframe computer as the switching device. The problem with such an arrangement is that the flow of all communications had to be directed through the large mainframe computer. If the lines to that computer were "busy" then communications had to be shut down. The advantage of a network is that every device on the network can communicate directly with all other devices on the network, thereby freeing the mainframe computer from serving as a switching device. A microcomputer can communicate directly with another microcomputer, with a printer, or with the large mainframe computer. Such a system is versatile as well as efficient.

A network allows microcomputers to be used to their full potential. For example, an internal auditor could develop worksheets and run preliminary calculations on a microcomputer on a stand-alone basis using a spreadsheet program, and then communicate with

Local Area Networks (LANs) require only a single cable with each device attached to it.

a mainframe to perform analytic review or sampling procedures, and then send the final result to the supervisor's terminal for review. The potential of local area networking systems is impressive, being limited only by the imagination of users.

When investigating the need for a network, the accountant should begin by analyzing the management information system to determine the objectives to be accomplished. Then, contingent technologies appropriate to these objectives can be investigated. As with all aspects of computers, costs of data communication systems vary widely. A comparative study must be made of the respective costs and benefits of each system, keeping in mind the objectives that the system needs to accomplish.

Videotext

Videotext (or Videotex) is the blending of video and textual technologies to transmit both television-quality pictures and text messages to users and to permit a response. A videotex system is normally composed of a special videotex terminal (or a microcomputer connected to a television set) and a link to a large central computer either through a telephone line or cable system.

The advantage of a videotex system is that it is a relatively low-cost and yet easy to use medium that blends together the picture quality of television with the information processing benefits of computers. The applications are seemingly infinite. Home banking, home shopping, electronic mail, and encyclopedic information searches are but a few of the services possible utilizing videotex technology.⁴

Only a few broad-based videotex services are presently available in the United States, but additional ones are in the process of development.⁵

TABLE 1

Approximate Cost Of National Information Services

Service	Primetime Rate	Nonprimetime Rate
CompuServe	\$22.50 per hr.	\$5.00 per hour
Dow Jones	\$ 1.20 per min.	\$.20 per min.
The Source	\$20.75 per hr.	\$7.75 per hr.

However, the *Wall Street Journal* reported recently that Viewtron, the country's first videotex service, is developing much slower than anticipated. On its first anniversary it had attained only about half of the 5,000 subscribers that had been predicted. Thus, the *Journal* noted that there seems to be a "wait-and-see" attitude prevalent throughout the industry.⁶

In the meantime, text-only services are the primary information utilities available to the public. While they do not offer the advantage of video-grade pictures in addition to text, they are presently available at a reasonable cost. There are three major national text-only information services: The Dow Jones News/Retrieval Service, CompuServe Information Service, and The Source.⁷ Most of the features of interest to accountants are offered by all three services.

Securities Price Quotes. Price quotes on stocks, bonds and commodities can be easily obtained using any of the three services. The reported prices must, however, be delayed fifteen minutes due to SEC regulations.

Investment Advisory Services. Each of the three services offers several investment advisory services. For instance, CompuServe offers such investment advisory newsletters as Brennan Reports, Common Sense, the Contrary Investor, the Dines Letter, and the Fraser Opinion Letter. CompuServe also offers Standard & Poor's General Information Files, which contains detailed financial information on 3000 major publicly-held companies, as well as Value Line Data Base II, a weekly Value Line Investment Survey. The Source offers such services as Raylux Financial Commentary and Raylux Business Outlook,

which feature advice and analysis from investment advisors and economists. STOCKVUE is a service provided from MediaGeneral Financial Services with which subscribers have access to current and historical information on stocks. The system will also rank the stocks on various characteristics.

Tax and Legal News. Recent tax developments and changes in laws are summarized in most of the services. Most also offer an opinion by leading analysts on the effect of the tax and legal changes.

Electronic Shopping. This service is available on all of the three communications services and enables customers to access price information and descriptions of over 50,000 items. Items available on the service can often be purchased at large discounts.

Travel Arrangements. The Source offers such services as AIRSCHED-D which can provide a current list of all domestic flights complete with arrival and departure times, meals, and type of plane utilized on the flight. Using a communications network, customers can make reservations for airlines, hotels, and automobile rentals, and can even tap into a restaurant guide with the Source. Using CompuServe, private pilots can file flight plans.

Cost of Services. The pricing arrangements for the different services depend on a number of factors: the time of day the service is used, the



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type of modem (300 or 1200 Baud) used, and the type of membership purchased. Most of the services charge a connect fee or a membership fee. Estimates of basic rates for the least expensive membership for a 300 baud modem are shown in Table 1.⁸ While the costs are not negligible, it should be kept in mind that the expenditures may be deductible.

Conclusion

More than any other member of the team, the accountant has the technical expertise and the broad knowledge of business necessary to provide assistance in developing a practical management information system.

Data communications is a new technology that the accountant must master in order to continue this tradition of service. Not only will this new technology provide an additional opportunity for the accountant to provide assistance to management, but it will provide a valuable tool for the accountant to use in performing the role of management advisor. Ω

NOTES

¹For current information on this development see "IBM Unveils High-Powered PC And an Office-Computer Network", *The Wall Street Journal*, August 15, 1984, p. 3; "Networks Connecting Diverse Computers Are Expected to Undergo Rapid Growth", *The Wall Street Journal*, August 31, 1984, p. 13.

²For an excellent introduction to local nets for micros see "Local Nets for Micros", David Ferris and John Cunningham, *Datamation*, August 1, 1984, pp. 104-109.

³For a thorough discussion of the mechanics of networks see "Is It The PBX or Is It The LAN?", Philip H. Reagan, *Datamation*, March 1984, pp. 147-150.

⁴For an overview of videotex see, "Videotex: Science Fiction or Reality?", Darby Miller, *BYTE*, July 1983, pp. 42-56.

⁵Current developments in this area are discussed in "Centel Is Set To Plunge into Videotex", *The Wall Street Journal*, August 15, 1984, p. 29.

⁶"Knight-Ridder's Cutbacks at Viewtron Show Videotex Revolution Is Faltering", *The Wall Street Journal*, November 2, 1984, p. 19.

⁷"Ailing Videotex Ventures Haven't Slowed Plans to Market the Information Services", Mike Connelly, *The Wall Street Journal*, March 28, 1985, p. 37.

⁸The rates and particular services are subject to change and should be verified by contacting the service in question.

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timetables, and specific activities which take into account the strengths and weaknesses of the principal participants, especially if the marketing duties are to be shared by several members of the same firm. The discussion which follows is not intended to present all the possibilities, but it should serve as a guide—and, more importantly, a conceptual framework that will help individual CPAs generate more ideas specific to their own practice units.

- Write a brief biographic sketch of the firm and its principal members. Include brief summaries of the major client focus—trucking companies, farmers, wholesalers, etc. This is not intended to be a handout to all prospective clients, but rather a summary of your areas of special knowledge which can be handed to a client or attorney when proposing an engagement.
- Develop a list of the local attorneys who handle a lot of litigation, including their specialties (family law, personal injury, business disputes, etc.). Set up a schedule for meeting with each identified attorney (at lunchtimes if appropriate) and discuss with them their requirements for expert witnesses in litigation matters. Keep up the contacts on a regular basis; one meeting is not going to make any attorney remember a specific CPA when a case comes up three months later requiring a CPA expert witness.
- Develop a list of seminars, speeches, courses, etc. which the firm is qualified to present to professional organizations, service clubs, civic groups, and local colleges. The current media attention to business liability insurance problems is a natural lead in for CPAs to speak on the subject of accounting records required for insurance claims. (Note: CPAs who are not good public speakers should *not* offer to speak publicly. Assign such people to other tasks.)
- Develop a list of local professional organizations and service clubs, civic groups and schools, and offer to speak on the subjects developed above. Also from this list, assign each principal member of the CPA

firm the task of joining some organization(s) and serving in some accounting-related capacity, such as on finance committees, etc. The idea is to be as visible as possible while doing a good job.

- Go through the firm's client list, and set up a schedule for meeting with each major client in a "brainstorming" session. Using a pre-established agenda, discuss the client's operations, goals, and problems. In those discussions, point out the CPA firm's new (or expanding) emphasis on helping clients with litigation matters. (Note: Other additional work may come from such sessions—not just forensic accounting engagements.)
- Obtain client permission to talk about a successful or well-done forensic accounting engagement, and use that as an example—a "reference"—when talking to attorneys, groups, potential clients, etc.

Conclusion

Those CPAs who are considering expansion or commencement of a forensic accounting practice have many factors to consider before making a decision. Too many times in the management of CPA practices such decisions are made "by default"—that is, the practice just goes along without specific direction, and if a forensic accounting engagement comes along, it is treated the same as a tax return engagement. Forensic accounting is an entirely new accounting direction for many smaller firms and the decision to commence or expand into this field should not be made lightly. The pros and cons underlying that decision, discussed above, are only a scratch on the surface of an exceedingly complex area of practice. If the decision is made to go forward, the effort required to establish and expand a forensic accounting practice is substantial. The impact on the firm can be significant—negative as well as positive—and forensic accounting is, therefore, not for everyone. Hopefully, the preceding discussion will help CPAs determine for themselves whether or not they want to enter this field. Ω

Linking Capabilities of Commercially Available Micro-computer Software

Facilitates Management Operations

By J. Stephen Collins

Today's practicing accountants, as well as the business executives and managers with whom they work, have a growing interest in microcomputers and related software packages. However, when it comes to purchasing and effectively using this hardware and software, either alone or in combination with a larger computer, uncertainty about the features of the various micros and the capabilities of the software is common.

Micros and their accompanying software products have an extraordinary range of tasks for which they may be used. Word processing and electronic spreadsheets are probably the two most popular applications, but data base, graph/chart, statistical, and graphics/design packages have proven equally valuable to many users. Specific tasks are limited only by the imagination of the user and might include accounts receivable and accounts payable, inventory control, fixed asset and project management, cash budgeting, sales forecasting, report preparation, mailing lists or directories, and numerous specialized projects.

Microcomputer software packages are not only useful and powerful in their own right but, in many cases, can

also be linked with each other to give the user even greater flexibility. Linking is a valuable feature which allows the capabilities of more than one type of software (e.g., word processing, spreadsheet, data base, graphics, etc.), usually from the same manufacturer, to be brought to bear on a specific project. For example, data from a sales forecast prepared with a spreadsheet package could be transferred through the microcomputer to a report being prepared with a word processing package, or could become the input data for a graph/chart package which expresses the sales forecast in the form of a graph. Similarly, as will be illustrated later, financial data prepared within a data base package could be transferred to a spreadsheet package as a basis for generating depreciation and amortization schedules, comparisons of budgeted vs. actual cost, and related reports.

As an alternative to the linking of individual software packages, a single integrated package (e.g., the new *Jazz* software by Lotus), might provide the same capability. Some users will probably find, however, that the word processing, data base, spreadsheet, and additional applications in a single in-

tegrated package are not as powerful or flexible as those which are purchased individually and linked with other compatible software as needed.

Accountants need to become familiar with the opportunities offered by commercially available microcomputer software for both their own benefit and that of their clients or employers. To this end, the discussion and illustrations below cover an example designed to increase awareness of the many favorable features of such software, including substantial cost savings over more sophisticated customized products.

A Model System

This section discusses the development of a hypothetical fixed asset and project management system for a business of moderate size, and contrasts the system with two alternative options which are considered less desirable. Although any number of examples could have been used, a fixed asset management system was chosen because of its anticipated familiarity to the reader and because it provides a clear illustration of the use and the linking of two of the most popular types of software, a data base package and a spreadsheet package.

The Problem. Most business organizations, regardless of their size, have considerable resources invested in fixed assets. This is particularly true of those entities which own their own facilities. Buildings are costly and complex, because they include not only a primary and secondary structure (foundation, exterior and interior walls, floors and roof, etc.) but also a variety of additional components such as electrical, heating/cooling, and plumbing subsystems.

In order to obtain maximum service from buildings and other fixed assets, they must be maintained in good working order. This means incurring ordinary repair and maintenance expenses as well as planning and implementing major capital projects (renewal/replacement, renovation, alteration, etc.).

To facilitate these activities, a business of even modest size must have a system to monitor its fixed assets and plan for repair expenses and capital expenditures, either as needed or as company policy dictates. For new companies, or those without an adequate fixed asset system, an in-

dependent or company accountant will need to develop such a system or to assist in its development. In a typical case, the system will include procedures to measure and record the condition of fixed assets, assign priorities to the many tasks which are under consideration, and follow the progress of the work itself. Similarly, there is a need to record and follow the expenditures made on these activities and, over the long run, to estimate the funding required and explore alternatives as to how such funding might be obtained and repaid.

While some of these actions obviously require judgments and decisions by management, the recordkeeping portion of the activity has been made substantially easier by the computer "revolution" of the last several years and the availability of relevant software products. However, there are still several alternatives to be considered.

Alternative Solutions. At least three solutions are available to the company: (1) a prepackaged fixed asset system, (2) a customized system, or (3) a system developed internally by the company using commercially available software. Although the first two choices are often quite effective, they may have some built-in disadvantages. For example, prepackaged fixed asset systems, usually priced at \$2500 and up, are often written for only certain types of hardware and thus the user may be faced with the additional cost of purchasing the appropriate unit. In addition, these software systems may not completely address the user's needs or may be adapted to these needs only with great difficulty. A customized fixed asset system, i.e., one which is specifically tailored by the vendor to the client's needs, usually has none of the above problems but may be extremely costly to buy or maintain (\$25,000 and up for the initial cost of a very sophisticated system is not unusual) and thus beyond the reach of many organizations.

Fortunately, another very viable option exists and should be considered seriously by businesses and the accountants who serve them. The availability of microcomputers and the variety of accompanying software packages may represent a very practical and far less costly alternative which will be quite acceptable for many situations. Most of these packages can be linked together (by as-

sembling and transferring data) or otherwise used to record and track information on fixed assets, major capital projects (e.g., alterations or renewal/replacement), routine repairs, and the like.

Commercial software packages are considerably less expensive than the two other choices discussed above and are available for all of the major types of hardware currently on the market. Furthermore, although they must be adapted by the user to a specific situation, and may lack some of the sophistication and detail of their more expensive counterparts, they offer at least two offsetting advantages. First, they are very user friendly and quite easy to set up or modify, even for the novice. Second, they are adaptable to a wide variety of uses other than fixed asset recordkeeping (e.g., they can assist with inventory control and reorder, accounts receivable and payable, budgeting, mailing lists or directories, and a number of additional tasks). Thus, although there may be tradeoffs involved, inexpensive commercial software packages employed with any well-known microcomputer unit are a very attractive alternative.

Commercial Software Capabilities.

An example of an internally developed fixed asset system which uses commercial software will be presented and discussed in the following paragraphs. The sample documents and reports were designed and tested by the author using a basic Apple Macintosh computer with 128K of primary memory and a single disk drive (a second disk drive is helpful but not required). The software utilized included Microsoft File (a data base package) and Microsoft Multiplan (a spreadsheet package), each of which sell at retail for approximately \$175. *Comparable results can be obtained using hardware and software from other major companies.* It is hoped that accountants and other potential users in many types of organizations will discover that such a system is not only well within their capability to develop and maintain, but also more than adequate for their needs.

Data collection. Since the information provided by the system is only as good as the data available, the format and content of input documents must be considered carefully. Exhibit A shows one example of an input docu-

EXHIBIT A				
Sample Data Collection Form and Computer Screen				
Approval Date <u>January 2, 1986</u>				
Approved by <u>VP</u>		Responsible Person <u>Adams</u>		
ID No. <u>101</u>	Type <u>Renewal & Replacement</u>		Priority <u>1</u>	
Location <u>Main</u>	Floor <u>2</u>	Room <u>201</u>	Related Proj. <u>103</u>	
Description <u>Replace old deteriorated windows with new double paned variety; replace frayed wire and old electrical outlets along south wall to accommodate microcomputer units.</u>				
Project Summary:				
Bud. Cost <u>15000</u>	Est. Start <u>2/1/86</u>	Est. Finish <u>2/9/86</u>		
Act. Cost <u>14000</u>	Act. Start <u>2/3/86</u>	Act. Finish <u>2/10/86</u>		
Funding Source <u>Debt</u>				
Project Detail (Budget or Estimate):				
Elec. <u>\$1000</u>	Carp.\$ <u>14000</u>	Plumb.\$	Other\$	
Start <u>2/1/86</u>	Start <u>2/4/86</u>	Start	Start	
Finish <u>2/5/86</u>	Finish <u>2/9/86</u>	Finish	Finish	
Open Orders:				
Item	Vendor & Address	Cost	Ordered	Needed
<u>Window Units</u>	<u>Acme Window & Door 1265 Post Rd. Spring Hill</u>	<u>8000</u>	<u>1/3/86</u>	<u>1/10/86</u>

EXHIBIT B
Projects by Priority, Showing Cost, etc.

Priority	ID Number	Budgeted Cost	Actual Cost	Type	Location	Estimated Start	Estimated Finish
1	101	15000	14000	R&R	Main	2/1/86	2/9/86
1	105	25000	20000	Alt.	Annex	2/1/86	2/15/86
1	106	1800	1750	R&R	Annex	3/10/86	3/18/86
2	103	50000	55000	Alt.	Annex	2/5/86	3/10/86
2	104	500	450	Repair	Main	2/20/86	2/25/86
TOTAL		\$92300	\$91200				

EXHIBIT C
Projects by Starting Date and Other Info

Estimated Start	ID No.	Actual Start	Estimated Finish	Actual Finish	Priority	Type	Location
2/1/86	105	2/2/86	2/15/86	2/15/86	1	Alt.	Annex
2/1/86	101	2/3/86	2/9/86	2/10/86	1	R&R	Main
2/5/86	103	2/4/86	3/10/86	3/4/86	2	Alt.	Annex
2/20/86	104	2/20/86	2/25/86	2/23/86	2	Repair	Main
3/10/86	106	3/10/86	3/18/86	3/20/86	1	R&R	Annex

ment which might be used to collect information important to management. While the document itself would probably exist in paper form, a corresponding computer screen can be prepared using data base software to facilitate the input of all the data contained on the form. The purpose of Exhibit A is to gather all relevant information about capital or maintenance projects involving fixed assets.

Most of the information can be recorded before the project is started, but some data will not be known until the project is in progress or actually completed. The design and timing of reports must take these factors into consideration. Although all of the data elements shown would probably fit within the physical dimensions of most microcomputer screens, much more information can be stored if necessary by using the horizontal or vertical scrolling capability of the software.

The sample form as constructed in Exhibit A contains a considerable amount of data about scheduled projects, including ID number, type, designated priority, description, responsible person, approval source and date, location, budgeted vs. actual total cost, and source of funding.

The ID number of a related project can also be specified by the user (e.g., a project involving the same outside contractor) if this type of cross-referencing is desired. Estimated and actual starting and completion dates for the project are recorded along with the estimated starting and completion dates for the various skilled tradesman involved in the project and the cost of these specific services. Finally, for purposes of initiating and monitoring contact with outside vendors, a record of materials or parts to be ordered by the user is provided along with information on the identity of the vendor, the cost of the item, date ordered and date needed.

The information in Exhibit A for each project is known in computer terminology as a *record* and each data element within the record (e.g., ID No., Description, Budgeted Total Cost, Estimated Starting Date, etc.) is called a *field*. In a typical data base package both records and fields can be *created*, *updated* with new information, or *deleted* from a data file. In addition, fields must be identified as to their contents (text, numbers, dates, etc.). The real power of a data base package, however, comes from its ability

to *search* records for fields which meet criteria specified by the user; to *sort* fields alphabetically, numerically, or chronologically, depending on the type of field; and to display or print a *report* which results from the "search" and "sort" functions as well as from the specifications of content and format by the user. Over and above these features, additional flexibility is possible when the data base package is linked with other software applications (e.g., spreadsheet), as will be shown.

Sample output reports. For illustrative purposes, it will now be assumed that information like that shown in Exhibit A has been obtained for five projects and entered into a data file which has been created to record and monitor capital projects. Once this has been done, the user is in a position to display (and print, if desired) a variety of relevant reports. Examples of these reports are contained in Exhibits B-E below and are discussed briefly. Some of these reports result from using only the data base software, while others are prepared by linking certain data fields in Exhibit A with a spreadsheet package and then designing reports of a more financial nature within that package. After brief descriptions of the

exhibits generated by each type of software have been presented, some suggestions for other possible reports will be made.

The report in Exhibit B will be helpful in assessing the overall magnitude of existing capital projects. It sorts all current projects by priority and then by ID number. Additional data includes budgeted and actual cost for each project, and in total, as well as other identifying and scheduling information.

The report in Exhibit C provides a chronological listing of jobs sorted according to estimated starting date and would be helpful in short run and long run planning activities by management. Other information on the various jobs might be included as shown.

In addition to the reports shown in Exhibits B and C, the system can prepare other informative reports such as the following:

- *Electrical Work by Priority with Dates, etc.*—For purposes of coordinating project tasks which involve a particular trade or skill (e.g., electrical), this report would prioritize the projects and display the electrical component of the job in descending dollar order along with starting and ending dates for the electrical work and related project data. In addition, it could total and average the dollar amount of the electrical tasks within each priority. This type of report would be useful for such activities as coordinating the company electricians' schedules or perhaps soliciting bids from outside contractors on a package of electrical jobs.

- *Open Purchase Orders for Project Materials*—This report would provide a listing of open purchase orders alphabetized by the item to be purchased in connection with scheduled projects. In addition, it could show the name and address of the vendor, date ordered and needed, and related information. The report, which could also be prepared by vendor name, helps to ensure that needed materials are obtained in a timely fashion and may be the basis for negotiating volume discounts from frequently used suppliers.

The reports discussed above are examples of those which can be prepared using only the data base package. Numerous other illustrations could have been given, such as (1) a chronological listing of projects sched-

uled for the Annex, or for a range of rooms (e.g., Rooms 200-210) within the Annex, showing priority, cost, dates, etc.; (2) projects scheduled to start between February 20 and March 15; (3) projects whose estimated total cost equals or exceeds \$20,000; or (4) all skilled tasks (e.g., electrical, plumbing, carpentry, etc.) scheduled anywhere within a building, including estimated cost, starting date, completion date, etc.

As suggested earlier, however, the value of many software products is that they can be linked to (and from) other software designed for a variety of applications. For example, the data base vendor fields from Exhibit A could be set up as a separate data file so that appropriate vendor information can be merged into a form letter which has been developed by a compatible word processing package. Similarly, information contained within the data base program (e.g., the budgeted and actual cost data contained in Exhibit B) could be transferred to a compatible graph/chart package and displayed in the form of a graph. Additional examples of linking are possible using software manufactured for design or graphics applications.

The remaining discussion below covers the linking of data with yet another type of software, a so-called spreadsheet package designed to produce a variety of financial and statistical reports. Typical spreadsheet software provides the equivalent of an accounting worksheet which contains as many as several hundred columns and rows and within which a variety of mathematical and logical operations can be completed and labeled. The linking is accomplished by assembling the desired field(s) into one or more records and transferring the records to the memory of the the microcomputer for subsequent use with the spreadsheet package. Brief summaries and sample exhibits which could result from this linking capability are as follows:

The report in Exhibit D compares the budgeted and the actual total cost of the five projects and calculates the difference in dollars and as a percentage of budget. Additional formats could be set up to display and utilize the other dollar amounts contained in the project record (Exhibit A).

EXHIBIT D

Comparison of Budget vs. Actual Cost

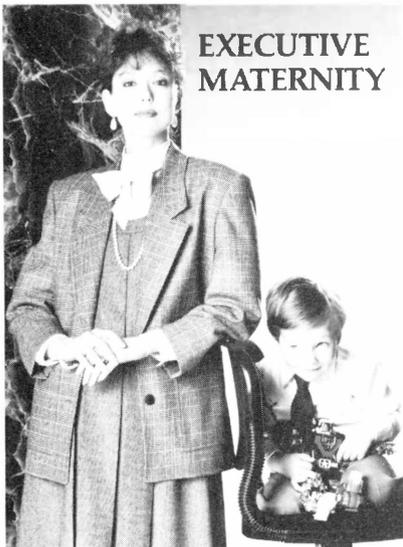
ID No.	Budgeted Cost	Actual Cost	Over (Under) Budget	Over (Under) Budget%
101	15000	14000	-1000	-6.67%
103	50000	55000	5000	10.00%
104	500	450	-50	-10.00%
105	25000	20000	-5000	-20.00%
106	1800	1750	-50	-2.78%
TOTAL	92300	91200	-1100	-1.19%

EXHIBIT E

Pro Forma Depreciation Schedules

Straight Line			Sum of Years' Digits		
Project		101	Project		101
Cost		15000	Cost		15000
Life		5	Life		5
			Denominator		15
Year	Depreciation	Book Value	Year	Depreciation	Book Value
		15000			15000
1	3000	12000	1	5000	10000
2	3000	9000	2	4000	6000
3	3000	6000	3	3000	3000
4	3000	3000	4	2000	1000
5	3000	0	5	1000	0
Total	15000			15000	

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Since major projects will ordinarily be capitalized and then depreciated, managers may desire to know the impact of annual depreciation on income. With this in mind, Exhibit E uses the \$15,000 budgeted cost of Project 101 and provides a depreciation schedule for the straight line and sum-of-the-years'-digits methods assuming a five-year life.

As in the case of data base software, spreadsheet software can be used to prepare additional reports such as the following:

- *Projected Amortization of Debt*—For projects funded with long-term debt, management may desire to estimate the impact of repayment on cash flow or taxes. This report would present a basic fixed-payment amortization schedule using an annual payment amount and interest rate specified by the user.

- *Pro Forma Balance Sheets and Ratios*—This report would illustrate the effect of the budgeted cost of a project on the balance sheet and on various ratios which might be important to the company. The level of detail in the balance sheet, as well as the choice of ratios, would be at the discretion of the user.

Again, this discussion can provide only a brief overview of the reporting possibilities and it should be noted that many other spreadsheet illustrations could have been given. For example, budgeted vs. actual data could be prepared and analyzed for the work done by skilled tradesmen if the input form (Exhibit A) was expanded to include actual data. Likewise, pro forma income statements are certainly possible, as are inflation-adjusted schedules which project recurring capital expenditures or repair expenses for 25-50 years into the future. Finally, the various items which require a current expenditure of cash could be included among the elements of a traditional cash budget for the company.

Summary and Conclusion

Commercially available microcomputer software is a practical alternative to the more costly and complicated systems which are specially designed to streamline various management tasks. Although the specific model illustrated herein utilized data base and spreadsheet software packages to set up a fixed asset and project management system, other types of software and other management

needs could just as likely have been chosen. In fact, the imagination of the user might very well be the major limitation in determining how and under what conditions this software can be employed.

The development of the microcomputer and the proliferation of its related software now offer a wide variety of planning and control applications which were heretofore unavailable at a reasonable cost. Furthermore, the relative ease with which these packages can be operated, and the accessibility of helpful books and mini-courses from retailers and other sources, have brought the successful use of software products well within the grasp of nearly all interested individuals. It is hoped that accountants and other readers will investigate carefully the many capabilities of this software and will begin to identify ways in which it might be utilized to maximum advantage within their own organizations or those of their clients. Ω



J. Stephen Collins, Ph.D., CPA, is assistant professor of accounting at Boston College. He obtained his Ph.D. from Boston College and was formerly Director of Financial Aid at Boston College.

The Impact of Sex-Role Characteristics on the Job Satisfaction and Success of Women CPAs

By Rebekah J. Maupin

Women have traditionally faced many obstacles in their efforts to prepare for and persist in male-dominated professions. Much of the discrimination against women has been centered around preconceptions of their feminine sex characteristics. Among those are: (a) the belief that women are often absent due to marriage and child rearing, (b) a belief that women are reluctant to accept responsibility, and (c) a belief in a tendency for women not to assume positions of leadership. It has been suggested that in order to overcome such sex-role stereotyping and be successful in a male-dominated environment, women have to assume more of the characteristics identified as being masculine.

The purpose of the article is to begin to evaluate the validity of this proposal as it relates to women CPAs. Is masculine behavior in women CPAs a help or a hindrance in rising to the top of the accounting profession? Can sex-role characteristics be used to predict the job satisfaction levels of female CPAs.

The Research Study

The sex-role characteristics selected for study include masculinity, femininity, marital status, and number of children. Information on sex-role char-

acteristics and job satisfaction was obtained from the mailing of the Bem Sex-Role Inventory (BSRI) and the Job Descriptive Index (JDI) to 500 women CPAs with the following usable responses.

	Number of Women CPAs Responding
Juniors	143
Seniors	107
Managers	58
Partners	34
TOTAL	342

Data Analysis. The first part of the data analysis involved testing whether women CPAs who experience a high level of job satisfaction possess sex-role characteristics that differentiate them from CPAs with a low job satisfaction level. In testing the hypothesis, the marital status, number of children, and the BSRI mean masculinity and mean femininity scores were used as the independent variables. These variables were used to predict the CPA's score on the Job Descriptive Index. (The appendix of this paper contains an analysis of the BSRI and JDI instruments; how they were scored; and a discussion of their validity.)

The hypothesis that a woman CPA's sex-role characteristics can be used to predict her JDI score was analyzed using multiple regression, and the resulting multiple correlation coefficient, R^2 , was tested to determine if it differed from zero as indicated by the F-ratio. The results showed that the hypothesis could be accepted at a level of significance beyond .05; indicating that a woman CPA's sex-role characteristics can be used to predict her job-satisfaction level.

In the regression equation for predicting the job satisfaction level of women CPAs, the masculinity and femininity scores were both found to be significant. Higher masculinity and femininity scores were positively correlated with greater levels of job satisfaction. Women CPAs with equally high levels of both masculine and feminine characteristics, androgyny, achieved the greatest job satisfaction. The sex-role characteristics of marital status and number of children were not significant in predicting a woman CPA's job satisfaction level.

The second part of the data analysis examined whether women CPAs who have advanced to the upper levels of the public accounting profession (partners, managers, and seniors) possess masculinity and femininity characteristics that differentiate them from recently hired CPAs (juniors). Table 1 shows the results of the group classification procedures.

As Table 1 illustrates, differences among the groups were significant. For example, 76 percent of the women partners were classified as androgynous (scoring high on both masculine and feminine characteristics) and the remaining 24 percent were sex-reversed (scoring significantly higher on the masculine characteristics than on the feminine characteristics). While at the

Women CPAs with equally high levels of both masculine and feminine characteristics achieved the greatest job satisfaction.

TABLE 1
Percentage of Subjects in Various Sex-Role Groups
as Defined by a Median Split of both Masculinity and Femininity¹

	Sex Role			
	Masculine	Feminine	Androgynous	Undifferentiated
Juniors (n = 143)	4%	52%	24%	20%
Seniors (n = 107)	13	38	35	14
Managers (n = 58)	33	17	50	0
Partners (n = 34)	24	0	76	0

¹The Bem Sex-Role Inventory allows for a fourfold classification of subjects as either masculine (high masculine-low feminine), feminine (high feminine-low masculine), androgynous (high masculine-high feminine), or undifferentiated (low masculine-low feminine).

Note: A significant aspect of an individual's behavior pattern as described in the context of the Bem Sex-Role Inventory is that it changes little over time (Bem, 1976). Thus, any age differences among the groups should not be a limiting factor.

entry level of the public accounting hierarchy, a majority (52 percent) of female audit juniors were sex-typed as feminine, only 24 percent androgynous, 20 percent undifferentiated, and only 4 percent masculine.

Overall, the classification results indicate that the majority of women CPAs rising to the upper levels in the public accounting profession tend to have "androgynous" behavior patterns. Whereas, nonandrogynous women may have behavior deficits with respect to public accounting careers; with feminine females having perhaps the greatest deficit of all.

Conclusion

Both in public accounting and in society at large, masculinity and femininity have long been conceptualized as bipolar ends of a single continuum; accordingly, a person has had to be either masculine or feminine, but not both. This sex-role dichotomy has served to obscure the very plausible hypothesis: first, that many individuals might be 'androgynous;' that is, they might be both masculine and feminine, both assertive and yielding, both instrumental and expressive—depending on the situational appropriateness of these various behaviors; and conversely, that strongly sex-typed individuals might be seriously limited in the range of behaviors available to them as they move from situation to situation.

The current study provides evidence that there exists a distinct class of women CPAs who can appropriately be termed "androgynous" (those whose sex-role adaptability enables them to engage in situationally effective behavior without regard for its stereotype as masculine or feminine); and that the majority of women reaching the partnership level in public accounting firms have such

androgynous behavior patterns. In addition, the study indicates that women with 'sex-typed' behavior (feminine females) are not likely to experience a high level of job satisfaction or to remain with a public accounting firm.

Perhaps the greatest significance of this study is that androgyny appears to be an acceptable alternative to the exclusively masculine behavior that, heretofore, was perceived as making successful CPAs in general. Indeed, there appears to be a significantly positive payoff for women CPAs to expand the stereotypical sex roles traditionally assumed and become more androgynous.

Appendix

Bem Sex-Role Inventory. The Bem Sex-Role Inventory (BSRI) includes a masculinity, femininity, and neutral scale,¹ each of which contains 20 personality characteristics. These characteristics are listed in Table 2. When taking the BSRI, a respondent was asked to indicate how well each of the personality characteristics describes herself. The scale ranges from 1 ("Never or almost never true") to 7 ("Always or almost always true"). The BSRI characterizes a person as masculine, feminine, or androgynous as a function of the difference between his or her masculine and feminine personality characteristics. A woman CPA was thus sex-typed, whether masculine or feminine, to the extent that this difference score was high, and androgynous, to the extent that this difference score was low. Androgyny refers to the situation in which a woman CPA was both highly masculine and highly feminine.

The BSRI mean masculinity and mean femininity scores were the independent variables.² They were

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The majority of women CPAs rising to the upper levels in the public accounting profession tend to have "androgynous" behavior patterns.

TABLE 2
Items on the Masculinity, Femininity, and Neutral Scales of the BSRI

Masculine Items	Feminine Items	Neutral Items
Acts as leader	Affectionate	Adaptable
Aggressive	Cheerful	Conceited
Ambitious	Childlike	Conscientious
Analytical	Compassionate	Conventional
Assertive	Does not use harsh language	Friendly
Athletic	Eager to soothe hurt feelings	Happy
Competitive	Feminine	Helpful
Defends own beliefs	Flatterable	Inefficient
Dominant	Gentle	Jealous
Forceful	Gullible	Likeable
Has leadership abilities	Loves children	Moody
Independent	Sensitive to the needs of others	Reliable
Individualistic	Shy	Secretive
Makes decisions easily	Soft spoken	Sincere
Masculine	Sympathetic	Solemn
Self-reliant	Tender	Tactful
Self-sufficient	Understanding	Theatrical
Strong personality	Warm	Truthful
Willing to take a stand	Yielding	Unpredictable
Willing to take risks		Unsympathetic

Source: Bem, "The measurement of psychological androgyny," *Journal of Consulting and Clinical Psychology*, 1974, 157.

by companies for each other's customers and the merger mania serve as good examples.

The eighth principle is that management of many is the same as management of a few. It is a matter of organization. The method of employing men is to give them responsibility commensurate with their abilities. Do not charge people to do what they cannot do.

And the ninth is secrecy. The enemy must not know where battle is to take place. Corporations devote the utmost secrecy to development of new products and take great care to stay ahead of their competition.

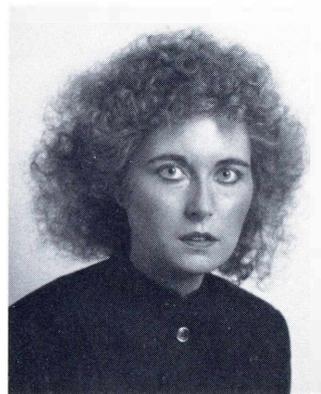
Conclusion

Many young people, men and women, who today are entering management positions have never had any military experience. But this does not mean they cannot learn these principles of war, or business, as they might be called. These principles are a good checklist against which to measure progress in the business world and especially when engaging competition.

Sun Tzu's classic, *The Art of War* (translated by General Samuel B. Griffith) may be difficult to find in a public library. However, Peacock's *Corporate Combat* and Hennig and Jardim's *The Managerial Woman* should be readily available. Reading these texts will help you understand how to be on the "inside" rather than on the "outside" of what is taking place in your company and in the corporate world.Ω

used to predict the CPAs score on the Job Descriptive Index. The Job Descriptive Index (JDI) is a cumulative point adjective checklist type of scale³ and was constructed to measure five separate aspects of a worker's satisfaction: satisfaction with work done, with the promotional opportunities and policies, with the pay, with the co-workers and with supervision. The wide adoption of the JDI by researchers, the extensive validation of the JDI by Smith, Kendall and Hulin, and the support of well-known job satisfaction researchers such as Porter, Steers and Vroom all point to the usefulness of the JDI as a measurement instrument for employee satisfaction.Ω

³Cumulative-point means that each response is graded by points, and the points are added together for the total.



Rebekah J. Maupin, Ph.D., CPA, is assistant professor of accountancy at the University of Hawaii-Manoa. She holds a Ph.D. from the University of Arkansas and is a member of the AAA, NAA and Hawaii Society of CPAs.

NOTES

¹The validity of the BSRI in androgyny research has been extensively reviewed by Taylor and Hall (1982). They reported, (a) general support for the differential validity of the masculine (M) and feminine (F) scales, (b) convergent validity coefficients (i.e., M scale with male-typed measures and F scale with female-typed measures), and (c) highly similar results for men and women.

²The mean M score equals the total score on all 20 masculine characteristics divided by 20; the mean F score equals the total score on all feminine characteristics divided by 20.

Letter to the Editor

Accounting for Pensions

The disclosures on the ratio of pension costs to covered payroll and on changes in the fair value of plan assets suggested in the exposure draft were recommended but were not required in the final statement.

Karen Hooks
 Author

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