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BOOK REVIEW

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Robert S. Kaplan, Advanced management accounting (Prentice-Hall, Englewood Cliffs, NJ, 1982).

This book makes a significant contribution to management accounting. Teachers of advanced management accounting classes appreciate the difficulty of finding teaching materials. Usually, each instructor develops a set of course materials that includes articles, cases, notes and so forth. There has been a paucity of textbooks, however. Users of this book will find that it reduces the cost of teaching these classes.

This book is also useful for a variety of reference purposes. I predict this book will be referred to extensively in response to non-managerial accounting colleagues who ask: 'What is there to teach beyond the basic cost accounting course?'. Ph.D. students wanting research-oriented background in management accounting will find this book helpful. It also has value as reference material to undergraduates and masters students who are not enrolled in advanced managerial accounting courses.

This book is much more than a pedagogical tool, however. It is an excellent summary of analytical research in management accounting during the past twenty years. Further, it applies this research to accounting and integrates it with non-trivial accounting issues beyond that done in the original articles. While there is no substitute for reading original research articles, this book reduces barriers to entry to the literature. This book should be particularly useful for teachers and practitioners who wish to keep abreast of analytical research in management accounting, but for whom the cost of reading original source research articles exceeds the benefits. In short, Kaplan's book serves a dual role — it is both an integration of recent research with managerial accounting and a pedagogical tool. In recognizing the book's dual role, I first review the book without regard to its use in the classroom, and later consider it as a teaching tool.

Focus

How does Kaplan's book fit into the management accounting culture? First, it is clearly a book on *management* accounting, not *cost* accounting. Readers who expect to find detailed product costing concepts and methods will be disappointed. Second, it integrates operations research with management accounting. A major strength of this book is that neither the models nor the accounting applications are trivial. Third, the book is oriented toward financial and accounting staff functions, rather than general management users, mostly because of the integration noted above. The focus of the book is on decision aids, tools, and techniques for accountants and financial analysts. While present and potential general managers would find the book useful, it does not focus on users in the manner of casebooks. Fourth, the book blends rigor and readability. While Kaplan does not overpower the reader with analytical details, he includes them where necessary to make a point. Fifth, the book focuses on the subset of management accounting research that applies management science models to management accounting. Only a few chapters apply findings from the principal–agent and information

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economics literature to management accounting. Developments in the behavioral literature are mentioned very briefly.

In short, the book has a clear focus — it integrates management science models with management accounting. Given this focus, the reader with no background in management/cost accounting will not appreciate and understand the accounting issues. Further, an elementary knowledge of mathematics and statistics is necessary to understand the analytical material.

Contents

This book has two distinct parts: Chapters 1 through 12 deal with 'cost accounting' (in Kaplan's terms), Chapters 13 through 17 deal with management control of decentralized organizations. 'Cost accounting' here refers to methods of estimating costs and providing costs for decision making. My colleague, Robert Colson (who graciously gave me his comments on this book), refers to these chapters as 'decision aids'. These chapters show how management science and statistics provide more sophisticated methods of estimating and analyzing cost data for decision making. Chapters 13 through 15, which deal with management control, are more general-management oriented than earlier chapters. Chapters 16 and 17 introduce principal–agent relationships.

Chapter 1 sets the stage for the book by summarizing changes in accounting thought, from the search for 'true costs', to an emphasis on cost analysis for user decision models, to information economics, to recent developments in the use of accounting information in contracts between principals and agents. The message I received from this chapter is that Kaplan believes the literature in information economics and agency theory has contributed some insights into the role of accounting, but given the preliminary stage of the research, its current application value is low. On the other hand, the literature applying management science and statistical analysis to management accounting has matured to the point where there is considerable application potential. Yet we find this research has had little impact on practice. Kaplan believes one reason is that financial managers and controllers were not taught this material when they studied cost accounting. Hence, the objective of this book is to close the gap between this research and teaching. (That objective has clearly been accomplished in this book.) Chapters 2 through 4 deal with basic cost concepts and cost estimation. The material in Chapters 2 and 3 summarize and only slightly extend material found in most cost accounting textbooks. But they are a necessary foundation for much of the material in subsequent chapters. Chapter 4 goes beyond material found in most cost accounting textbooks to discuss nonlinear regressions, the use of dummy variables and other methods of dealing with data and model problems in making statistical cost estimates.

Chapters 5 and 6 deal with cost–volume–profit analysis. Chapter 5 begins at an elementary level and quickly moves on to deal with multiperiod and multiproduct C–V–P, constrained optimization, and nonlinear cost and revenue functions. Chapter 6 introduces uncertainty to C–V–P. This discussion focuses on uncertainty in sales; very little space is given to uncertainty in sales *and* costs, which would be a natural extension and could make use of simulation models. This chapter also discusses a decision theory approach to C–V–P under uncertainty, including expected value of perfect and sample information and the classic 'Newsboy Problem'.

Chapter 7 is an excellent chapter on cost analysis and pricing. It includes discussions of full and incremental cost pricing, target ROI pricing, and 'vintage' pricing. Kaplan does an admirable job of blending economic theory with practical circumstances that frequently lead to cost-based pricing.

Chapter 8 discusses opportunity losses resulting from errors in cost estimation. Other than Chapter 1, this chapter comes closest to dealing with the economics of information. Examples of opportunity losses discussed include price–volume and economic order quantity decisions. This chapter also includes a discussion of the value of timely information.

Chapters 9 and 10 discuss variances. Chapter 9 discusses sales, profit, mix, market share and similar variances at about the level found in cost accounting books (although often in appendices or late chapters). The decomposition approach used provides a nice overview of variances. Chapter 10 discusses variance investigation models, including an extensive discussion of decision theory approach to variance investigation. In this chapter, as in Chapter 6 ('C–V–P Analysis Under Uncertainty'), Kaplan does a nice job of moving the reader through the statistical methods first, then he goes on to discuss the models in a decision theory framework.

Chapters 11 and 12 discuss cost allocation. Chapter 11 discusses reciprocal cost allocations at a level often found in chapter appendices of cost and managerial accounting books. Chapter 12 introduces more advanced topics — a nonlinear programming model for joint cost allocation and use of mathematical programming to identify by-products.

Chapters 13 through 15 discuss management and control of decentralized operations. Many of the topics in these chapters are similar to those found in management control textbooks (e.g. rationale for decentralization, transfer pricing and performance measurement). In addition, Kaplan discusses more 'advanced' topics like risk aversion, agency costs, and present value depreciation methods for ROI computations. Kaplan does a nice job of combining the pragmatic approach taken by some management control books with economic theory. For example, the reader gets the message that although agency theory deals with problems at a much more primitive level than that found in complex, decentralized organizations, it provides a theoretical framework for explaining behavior.

The material in Chapter 16, which discusses executive bonus plans, and in Chapter 17, which discusses formal incentive contracting models, are not found in typical cost accounting texts. Chapter 17 provides a very good overview of analytical agency theory. A nice feature of this chapter is Kaplan's objective view of the literature, as indicated by the following summarizing sentences: 'At this stage, it would be premature to advocate major changes in a firm's management control system based on these research findings. But our study of these models should increase our sensitivity to the critical issues that arise with uncertainty and private information.' (p. 622).

Textbook considerations

The book covers a variety of topics that, with cases, problems and additional readings, should provide ample material for an intermediate or advanced management accounting class. The only topic that some readers might have expected to be given more attention is budgeting (e.g., forecasting methods and capital budgeting techniques).

Students using this book should have, at minimum, one introductory level cost or management accounting course. If students have had only one course in managerial or cost accounting, nearly all of the material in this book would be new. Students who have covered virtually all of the material in a cost accounting textbook could probably skim or skip Chapters 2, 3, 5, 9, 11 and portions of 13 through 15. This book could be used in either an undergraduate or graduate course.

Students do not need advanced mathematics to use this book, but they should feel comfortable with symbolic manipulations and have a working knowledge of basic algebra. They should also be familiar with regression, probability theory, linear programming, basic calculus, and similar topics at the level used in introductory statistics and management science courses taught in business curricula. Additional background in matrix algebra is needed for reciprocal cost allocations in Chapter 11, and some knowledge of integral calculus is needed for Chapter 17. A few sections and problems in other chapters require more advanced statistics or mathematics than previously indicated, but these could be skipped or skimmed without loss of continuity. While Kaplan is careful to signal the mathematical requirements of each section in both the textbook and the instructor's manual, I advise an instructor to read text, problems and solutions before assigning the material in this book. In short, students with some analytical background (e.g., engineering undergraduates) should have no trouble with the analytical requirements of this book. Students with no analytical background other than business school requirements should have little difficulty if they are given some guidance. The latter group may find this book builds their confidence in dealing with analytical material because they can see its application to realistic problems.

The success of an accounting textbook in the classroom is a function of the end-of-chapter materials. Previous innovative books have not been as successful as their authors and publishers anticipated because of the end-of-chapter materials. I read and worked a sample of these materials, as did my colleague, Bob Colson. We concluded there is a large supply and variety of problems that would satisfy most instructors who use problems and some cases. Kaplan includes many original cases and long problems, material from the Certified Management Accounting examinations, and some previously published cases and problems. Most chapters have several long problems or cases that are sufficiently challenging for classroom discussion. One method of measuring the quantity of end-of-chapter material is to estimate the amount of time required for a student to work all end-of-chapter problems and cases. On that basis, I estimate that each chapter in this book has about 80 percent of the material found in a chapter in a typical cost accounting textbook.

An instructor using this book should work problems and cases before assigning them for a number of reasons. First, as with any new textbook, there are some minor errors and ambiguities in the end-of-chapter materials and instructor's manual. Second, there is considerable variance in the length and difficulty of the problems and cases that is frequently not apparent at first reading. Third, some problems and most cases require the student to draw upon earlier chapters or upon knowledge not in the book. While I see this as a strength of an 'advanced' textbook, the instructor should anticipate student difficulties in drawing upon material that was not covered in the chapter. Finally, the book contains many examples and illustrations of key points, but no self-study problems. To substitute for self-study problems, instructors can provide solutions to selected end-of-chapter materials.

Conclusion

Despite more than twenty years of research applying management science and statistical methods to management accounting, we observe very little impact of that research on practice. That should come as little surprise if we examine the personal costs and benefits to practitioners of applying these methods. According to Kaplan, a goal of this book is to close the gap between research and practice, by educating future accounting and financial managers and analysts.

A premise for this book is that the costs of applying analytical research in management accounting has limited the use of this research. An alternative explanation is that the benefits from the research are too low. In cases like this where we have little evidence to explain why particular research is or is not applied in practice, I find our experience with use of discounted cash flows in capital investment decision making to be instructive. Although basic time value of money concepts have been known in the literature for decades, perhaps centuries, the use of discounted cash flow techniques has only recently become common. A partial explanation is that discounted cash flows were first taught to large numbers of business students in the 1960s; those and subsequent students have been applying DCF on the job in recent years. To draw the parallel, there is roughly a three-phase evolutionary process in applying research: (1) literature development, (2) communication to students and (3) application in practice. Kaplan's book makes an important contribution to the second phase. Whether there will be a third phase is an unanswered question, of course. I believe Kaplan's book will, at a minimum, affect the way future accounting and financial managers and analysts deal with management accounting problems.

In summary, this book makes an important contribution to management accounting by synthesizing management science models and management accounting and by translating recent research. This book should make recent developments in analytical research in management accounting more accessible to students, teachers, and practitioners. Further, it extends the literature by synthesizing the research and applying it to management accounting problems.