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THE THEORY
OF BUSINESS
FINANCE Second Edition
A Book of Readings

OF BUSINESS FINANCE

A Book of Readings

SECOND EDITION

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PREFACE

Nine years ago, in the preface to the first edition, we felt that the “explosion” that had taken place in the literature of finance warranted a collection of a set of readings basic to the understanding of the field. Apparently, the marketplace felt the same way, as evidenced by the initial and sustained reception of the book. Since the first edition of *The Theory of Business Finance: A Book of Readings*, the literature has expanded considerably. Thus the selection of articles for this second edition was even more difficult because of a greater quantity of excellent choices.

Our goal in this edition is the same as that of the first edition, namely, to collate those readings that clearly stand out as landmarks in the study of finance and that constitute the minimal set of literature for every serious student.

The present set of readings represents our efforts, together with the advice of others, then, to present a reasonable body of substantive, analytical work for microfinance. We have tended to exclude readings in such other important areas as international finance, money markets, financial institutions, and investments, although many of the works included here serve as a foundation for all fields of finance.

Hence, the present version of *The Theory of Business Finance: A Book of Readings* accomplishes two things. First, it sets forth a “core” set of necessary readings. Second, each article sets forth the “core” parameters for financial decision making. We hope that this two-stage distillation will make progress through the literature maze more meaningful, more efficient, and more elegant.

It should also be noted that this revision excludes many areas of microfinance, for example, short-term capital management. Although we gave some attention to this subject in the first edition, space limitations forced us to include only those articles that addressed themselves to noncurrent financial deliberations.

Perforce, not everyone will agree with our selections. It is doubtful that an “optimal” set is attainable, given the taste functions of each possible user.

Nevertheless, in many areas of finance there seems to be a reasonable consensus regarding what constitutes the important articles to be studied. We have tried to restrict our collection to that set. In other areas, however, there seems to be little consensus. In those cases we had to exercise our judgment regarding the “reasonably acceptable” set. For reasons readily explicable by imperfect knowledge and other human frailties, the emergent set is necessarily preferred, *in toto*, perhaps only by us. Our hope is that it will be a preferred one to others also, at least within the theory of second best.

The foregoing implies, among other things, that many, many fine articles have been excluded. As in the first edition, such exclusion is not intended to slight these significant contributions. The budget constraint of a collection of readings also had to be acknowledged.

As anyone who has followed the recent development of the literature knows, the overlap in content and coverage among published works can be considerable. Of necessity then, much of each selection, when incorporated into a collection such as this, is duplicative. Paradoxically, to have shorn the various selections of paragraphs or sections redundant of materials in other selections would have been to detract from their overall flavor and intent. As a result, each reading is presented intact.

Along these lines, segmentation of these readings according to various section headings has been a somewhat hazardous task inasmuch as some of the selections could have been included in more than one section. The current topical arrangement is the preferred choice of the editors. Obviously, as the articles are unedited, each user can freely create his own variation. In general, the papers within each section are put in chronological order. Some articles are comments, criticisms, or replies of other works and therefore some care should be exercised in jumping around.

The nature of the readings, it will quickly be observed, is challenging. However, many can be handled by the beginning student, requiring in most cases acquaintance with simple mathematical expressions. The first edition found use in many types of classes. It has been used as a supplementary text for a beginning class in finance, as the main body of material for advanced classes, and in graduate seminars. The choice depended on the selection of the articles and the preparation of the students.

The second edition includes the following six sections:

- I. Profits
- II. Risk, Return, and Utility
- III. Capital Markets
- IV. Capital Budgeting
- V. Cost of Capital
- VI. Dividend Policy

We have added four important contributions to Part II—articles by Latané, Hadar and Russel, Pratt, and Roy. We have added the Mossin article to the

“Capital Markets” section, and three articles were added to “Capital Budgeting,” those by Lorie and Savage, Tuttle and Litzenberger, and Myers. The “Cost of Capital” section is enhanced by the inclusion of articles by Heins and Sprenkle, Modigliani and Miller’s “Reply,” and articles by Stiglitz and Hamada. To “Dividend Policy,” we added the Fama and Babiak article. We wish we could have included more. Those pages we had to delete to make room for the new caused considerable anguish.

We acknowledge the generosity of each of the authors for his permission to reproduce his paper. Our gratitude is also extended to the various editors and copyright holders who are acknowledged herein. Also, we give special thanks to the reviewers of the first edition and to Macmillan for bringing the new edition to fruition.

STEPHEN H. ARCHER
CHARLES A. D’AMBROSIO

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PART I

PROFITS

* * * * *

1. A CASH-FLOW CONCEPT OF PROFIT*

DIRAN BODENHORN†

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I. INTRODUCTION AND SUMMARY

The traditional theory of the firm is based on the assumption that the firm acts in the stockholders' interests and that the stockholders are interested in profit, so that the objective of the firm is to maximize profit. There have been many theoretical discussions of the concept of profit but there is no consensus of opinion as to the precise definition of this theoretical construct.¹ Nevertheless the theory of the firm has been based on the assumption of profit maximization and profit has been thought of (loosely) as the difference between the revenue received from the product sold and the payments made to the productive factors which together produced that product.

This concept of profit has been difficult to apply to investment decisions, and wealth maximization and cash-flow concepts have been developed in connection with this problem. This paper presents a cash-flow concept of profit which is associated with the cash-flow theory of stock value. This concept of profit has three desirable properties which make it more useful than the traditional concept. (1) It can be used in decision making within the firm since profit maximization is in the stockholders' interest. (2) The profit of the firm coincides with the stockholders' income in each time period. (3) Past profit can be measured from market values so that it is an objective measure of performance.

* The author is indebted to many friends for innumerable discussions of the concept of profit over many years. Professors Alan Batchelder and Robert Gallman have been particularly helpful in discussing the organization and content of this paper.

† Professor of Economics, Ohio State University.

¹ See, for example, Weston (10), and the references cited therein.

New cash flows are defined in Section II as the cash flows between the firm and its stockholders. The value of the stock is then the present value of the future net cash flows. In Section III cash-flow profit is defined as the increase in the stock value plus the net cash flow of the period. If the expectations for the period are observed and those for the future are unchanged, a normal profit is made on the initial stock value (investment). If expectations change, pure profits arise.

The cash-flow concept is then compared to the traditional concept. Section IV is concerned with the handling of depreciation, a concept which is not required in cash-flow analysis. It is shown that depreciation expenses understate capital costs unless implicit interest is charged on the book value of net worth. It follows in Section V that the traditional profit concept cannot be used in decision making unless this implicit interest is charged as an expense. It develops, however, that the decision is independent of the pattern of depreciation, which confirms the cash-flow analysis.

In Section VI it is shown that cash-flow profit and stockholders' income coincide in every time period, since it is based on the return which the stockholder would get if the firm liquidated as a going concern. Traditional profit is based on the return which the stockholders would get if the firm liquidated its assets piecemeal instead of as a going concern, and is therefore of less economic interest. The last section points out briefly the advantages of having a profit concept which can be measured from market values.

II. CASH FLOWS AND STOCK VALUATION

In this section we present a definition of cash flows and a theory of stock pricing based on cash-flow analysis.² A careful definition of cash flows is required because previous discussions have been concerned with investment decisions rather than stock pricing. They have therefore been concerned with the cash flows associated with a particular investment project, rather than with the flows to the firm as a whole, and we must recognize the possibility that cash flows generated by one project will be used to finance another project. Furthermore, other discussions tend to separate the investment decision from the financing decision, and we want to include financing considerations.

In defining cash flows, we need to distinguish transactions involving goods or services, financial obligations, and cash balances. The purchase of any good or service, whether for current use (expense) or future use (asset), results in an immediate cash payment, by our definitions. If in fact the goods are purchased on account, then a second transaction, the borrowing of money from the seller, is recorded. The sale of goods or services results in an immediate cash receipt. If credit is extended, then a second transaction, the lending of money to the buyer, is also recorded.

With respect to financial transactions, we distinguish between transactions

² For further discussion and justification of cash-flow analysis, see Bodenhorn (2) and (3), Dean (4), and Lorie and Savage (6).

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involving the financial obligations of the firm itself, i.e., obligations which call for a payment by the firm to someone outside the firm, and transactions involving the financial obligations of outsiders. Cash receipts and cash payments are defined to include all transactions with the financial obligations of outsiders.

In considering the firm's own obligations, it is useful to distinguish debt and equity obligations. This distinction would not be important in a world of certainty. If everyone knew precisely what payments would be made on all financial obligations, all future payments would be discounted by the lender at the same interest rate, and the terms of the contract between the borrower and the lender would be irrelevant. With uncertainty, however, the discount rate applied to equity obligations is higher than that applied to debt. We can handle this problem more readily if we define cash receipts and payments to include transactions involving debt obligations but to exclude equity transactions.

The problem of cash balances is somewhat peculiar. In a world of certainty it would be unprofitable for a firm to hold cash. Any cash not needed immediately to make payments would be lent at interest, as liquidity is worthless if all future cash needs can be perfectly foreseen, and there are no flotation costs associated with lending, borrowing, or repaying money.

In the presence of uncertainty, cash balances are held because they provide liquidity. In principle, the decision to purchase liquidity by increasing cash balances or to sell liquidity by reducing cash balances should be analyzed in the same way any other (investment) decision is analyzed. Management should project the future cash receipts and cash payments of the firm with various cash balances, subtract the payments from the receipts to determine *net* cash flows, and then select that cash balance (i.e., purchase that amount of liquidity) which maximizes the present value of the net cash flows.

An increase in cash balances is therefore considered as a purchase of liquidity and is defined as a cash payment. A reduction in cash balances is a sale of liquidity and defined as a cash receipt. If a firm receives cash from the sale of a product and increases its bank balance, this involves both a cash receipt and a cash payment, so that the net cash flow is zero. Subsequently, when the firm reduces its bank balance to pay wages, this is again both a cash receipt and a cash payment, with a net cash flow of zero.

The net cash flow in any period therefore is the difference between cash received by the firm from purchasers, debtors, or banks, and the cash used by the firm to increase cash balances, to pay for goods and services, to pay interest or repay debt, or to lend. Such flows must be associated with equity obligations, i.e., the net cash flow is the cash flow between the firm and its stockholders. A positive net cash flow represents a cash payment by the firm to the stockholders, i.e., a dividend payment or a stock repurchase, while a negative net cash flow represents a cash payment by the stockholders to the firm, i.e., a new stock subscription.

The associated theory of stock valuation is based on the assumption that

the cash receipts and the cash payments of the firm have been projected for each time period forever.³ Second, we assume that there are no transaction or flotation costs, or any costs other than interest (or dividends) involved in borrowing or repaying money, or in buying or selling financial obligations. Third, we assume that stockholders are indifferent between capital gains and dividend income, so that we ignore problems which arise because of the different taxes on income and capital gains.

Cash-flow theory then says that the value of the stock is the present value of the future net cash flows.⁴ This provides the justification for our treatment of cash balances. The definition of cash flows can be determined to suit the purpose of the user, and the cash-flow concept will be most useful if we define the flows so that the present value of the net cash flows is the value of the stock. Since the stock value is logically the discounted value of the dividends, not the dividends plus the increase in cash balances, our somewhat peculiar treatment of cash balances is required.

Within the more usual context of investment decisions, the decision has a favorable influence on stock price if the present value of the net cash flows associated with the investment project is positive, i.e., if the firm could pay enough dividends to justify raising the necessary funds by a new stock issue. If the net cash flows generated by the project are not used to pay dividends, but are reinvested in the firm (perhaps to purchase liquidity) this is a second investment project, and the two projects should be evaluated independently. The net cash flows associated with the second (reinvestment) project are negative and offset the positive net cash flow of the first project so that the net cash flow to the firm is zero. Since the peculiar treatment of cash balances does not arise in evaluating any decision except the decision about the level of cash balances themselves, our treatment of cash balances does not impair the usefulness of the cash-flow concept in investment decisions, and adds to its usefulness in stock valuation.

This theory implies that stockholders do not care whether the firm repurchases stock or pays dividends, since either one is a cash flow from the firm to the stockholder. This can be seen with a simple example. Suppose that a firm has 100 shares outstanding and is going to return \$2500 to stockholders. The value of the firm after the money has been distributed, which we can assume to be \$10,000, is the discounted value of the net cash flows after that

³ In principle, the time period should be of zero duration, and discounting should be continuous, but it is easier to think in terms of discrete time periods and to discount all the receipts and payments of a period for the same amount of time in calculating the present value. The duration of the time period makes no difference to any of the principles or conclusions in this paper.

⁴ We could exclude all dealings in the firm's financial obligations from the cash receipts and payments. The net cash flow would then include transactions with debtholders as well as stockholders. The present value of the net cash flows would be the total value of all the firm's financial obligations, and the value of the stock would be the total value of the obligations less the value of the debt. This would be more in keeping with the stock valuation theory suggested by Modigliani and Miller (8).

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date and is not influenced by the way the funds are returned to the stockholders. If the stockholders expect a \$25 dividend per share, each shareholder, subsequent to the dividend distribution, will have a share worth \$100 and a \$25 dividend. Before the dividend is paid, therefore, the shares must be valued at \$125.

The shares must also be valued at \$125 if the firm is expected to use the \$2500 to repurchase stock rather than to pay dividends, since the price of each share must be the same before and after the stock repurchase. If the shares are worth \$125 before the purchase, the company can purchase 20 shares for \$2500. The stockholders who sell will receive \$125 per share, and each share still outstanding will represent 1/80th of the total stock (which still has a total value of \$10,000) and therefore will be valued at \$125.⁵ In short, if the firm returns \$2500 to the stockholders, they do not care whether it is called a cash dividend or whether this firm buys a given proportion of each stockholder's shares. Each stockholder owns the same proportion of the shares outstanding and receives the same amount of cash.⁶

This theory has some interesting implications with respect to future investment projects, future financing decisions, and future dividend payments. The emphasis on dividend payments might be misinterpreted to mean that dividend policy is important in determining stock value. This is not the case. If a firm has decided to undertake an investment project which involves the outlay of, say, one million dollars, it makes no difference whether the million dollars is obtained by reducing dividends or is paid out in dividends and then borrowed by issuing new stock.

The net cash flows which determine the stock value have been defined as the flows between the firm and its stockholders, and these flows are not changed by the decision to finance internally or to issue new stock. If the stockholders receive a dividend of \$1 million, this is a net cash flow of plus \$1 million. If \$1 million of new stock is sold, this is a net cash flow of minus \$1 million. If both transactions take place in the same period, the net cash flow is the sum of the two, or zero. This, however, is exactly what the net cash flow would be if no dividends were paid, no new stock were issued, and the project were financed internally.⁷

The theory also implies that a decision to undertake investment projects in the future influences the value of the stock today. The stock value is based entirely upon future cash flows, and it makes no difference whether the flows are expected in connection with a project that has already been undertaken or a project that is going to be undertaken in the future.⁸ It makes no difference,

⁵ This proof follows the pattern used by Miller and Modigliani (7).

⁶ This, of course, relies on the assumptions that there are no transaction costs and that stockholders are indifferent between capital gains and dividend income.

⁷ For a more complete discussion of the influence of dividend policy on stock valuation, see Miller and Modigliani (7).

⁸ For further discussion of this point, see Alchian (1), Bodenhorn (3), and Miller and Modigliani (7).

that is, unless the cash flows associated with future projects are considered to be more risky than those associated with current projects and therefore are discounted at a higher rate. The determination of the appropriate rate at which to discount future cash flows, which is sometimes called the normal rate of return on investment, is unfortunately beyond the scope of this paper.

III. THE CASH-FLOW CONCEPT OF PROFIT

Profit is defined in connection with a particular time period, and reflects some of the activities of the firm during the period. We consider first three concepts relating to the status of the firm at the beginning and end of the period.

Stockholders' initial investment. This is the market value of the stock at the beginning of the period. It is the stockholders' initial investment in the sense that it represents what the stockholders could get by selling their shares at the beginning of the period, and is the amount of their wealth which they have entrusted to the firm for the period. Symbolically, the theory says:

$$S_0 = \frac{N_1}{(1+r)} + \frac{N_2}{(1+r)^2} + \frac{N_3}{(1+r)^3} + \dots = \sum_{i=1}^{\infty} \frac{N_i}{(1+r)^i}$$

where S_0 = Stock value at the start of the period = Stockholders' initial investment

N_1, N_2, \dots = Net cash flows expected in future periods
 r = Discount rate⁹

Stockholders' expected end-of-period wealth. At the start of the period, the stockholders expect that their initial investment will yield a return during the period. Their expected end-of-period wealth, $E(W_1)$, consists of the expected net cash flow of the period, N_1 , plus the expected end-of-period stock value:

$$E(W_1) = N_1 + \frac{N_2}{(1+r)} + \frac{N_3}{(1+r)^2} + \dots = \sum_{i=1}^{\infty} \frac{N_i}{(1+r)^{i-1}} = S_0(1+r)$$

This means that the expected return during the period is the normal rate of return on the initial investment as given by the discount rate.

Stockholders' actual end-of-period wealth. This is the cash flow that actually takes place during the period, C_1 , plus the actual stock value at the end of the period, i.e., the investment that the stockholders carry over into the next period, S_1 .

$$W_1 = C_1 + S_1 = C_1 + \frac{M_2}{(1+r)} + \frac{M_3}{(1+r)^2} + \dots = C_1 + \sum_{i=2}^{\infty} \frac{M_i}{(1+r)^{i-1}}$$

⁹ We shall assume throughout that this rate is determined in the market, but shall not seek to explain how it is determined.