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MODERN FINANCIAL THEORY

Impact on analysis of strategy

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New financial theories have been developed that have implications for financial strategy. The author first defines the area of strategy as consisting of debt, dividend, and investment policies. Modern theory holds that if we assume perfect capital markets, no taxes, and no growth, the financing decision cannot affect the total value of the firm. With respect to dividends, the theory argues that any artificial division of the benefit stream should have no material effect on the worth of the enterprise. As for investments, two firms in the same "equivalent return class" will maintain the relationship between their operating earnings regardless of other factors. In short, modern financial theory recognizes that extraordinary opportunities are exploitations of market imperfections.

The financial theory of the firm has evolved rapidly during the past two decades. To a large extent, the academic community has not

conveyed to the business community the practical impact of these new theories. This article hopes to communicate to the business community the general nature of this modern theory and its impact upon financial strategy.

For the purposes of this article, it is important that the realm of decisions that make up financial strategy be carefully defined. Neither short-term decisions nor the specific tactics of long-range decisions will be dealt with; these decisions are determined largely by specific conditions. This is similar to the separation of military strategy and tactics. We will deal with strategy that is not dominated by specific firm situations or events.

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FINANCIAL STRATEGY

In brief, financial strategy consists of debt policy (the proportion of the financing that should come from other than the stockholders, that is, debt of any form); dividend policy (the proportion or absolute amount of current profits that should be returned to the stockholders); and investment policy (the assets that should be owned by the corporation).

Debt Policy

The corporation serves as a capital intermediary that receives funds from investors and converts them into real, productive assets. There are two broad classes of investments: loans on the basis of a contractual arrangement via debt, and investments that make the stockholder a residual beneficiary of the enterprise. In general, these are two distinct categories, but there is an overlap with such

assets as investment vehicles, convertible securities, preferred stock, income bonds, and so on. For the purpose of our discussion, let us assume that there are just two distinct categories: debt and equity.

From the corporation's standpoint, debt and equity differ in two major ways. *First*, they differ in the degree of flexibility that management has in dealings with the existing holders of the corporation's stocks and bonds. The responsibility of the corporation to bondholders is defined explicitly in the bond indenture agreement. Other debt holders (trade creditors or suppliers of bank credit) have their relations defined either by similar contract or by the commercial code of the various states. Due to the nature of the agreement, any modification after the fact involves tenuous and formal negotiation; rarely does the corporation bargain from a position of strength. If the terms of the contract cannot be met or be modified to the satisfaction of the bondholders and the financial exigency of the corporation, bankruptcy or reorganization often results.

In contrast, the corporation's financial responsibility to its stockholders is defined in the broadest manner by the corporate charter, its amendments, and the bylaws of the corporation. These documents do little to specify the financial responsibilities of the corporation. The board of directors has the power to invest, pay dividends, and issue debt at its discretion. Only in the authorization of new stock certificates is there near universal need to obtain specific stockholder approval.

Second, debt and equity differ in tax treatment. The federal tax laws provide for the inclusion of interest as a deductible expense; payments to stockholders in the form of dividends are not deductible. This disparity of treatment is a fundamental factor in both the decisions of the practicing businessman and in the construction of the modern normative finance theory.

Thus, debt policy is the selection of the proper financing mix: bonds versus equity.

The question of timing of the issues are decisions of a short-run nature and are more tactical than strategic.

Dividend Policy

Every corporation must decide how much capital it is going to return to its stockholders during a specific time period. Most firms have established policies that are publicly expressed as a certain dollar amount per quarter or year. But in the board rooms of corporations, there are discussions as to pay-out ratios, the proportion of earnings that are to be paid over some longer run. It is this decision that falls under the province of dividend strategies.

The strategies open to a corporation range from one extreme to the other—from no dividend payments at all to the pay-out of all earnings. At any point in time, we find corporations following strategies at various points across the whole spectrum. It is not the object of this article to explain or excuse these various behaviors, but to relate modern finance theory to the various options.

Investment Policy

Every corporation must invest the funds entrusted to it by its bondholders and stockholders. It is the selection of the assets that a corporation holds that comprises its investment policy. The general thrust of modern theory is predicated on the assumption that the corporation's goal is the maximization of the wealth of its stockholders. This does not mean that the short-run interests of the stockholders are catered to at the expense of the interests of consumers, labor, management, society, and so on. Rather, it means that every alternative action or decision has some value to the stockholder, and the one chosen should be that which maximizes the present wealth of the stockholders.

For example, a foreman has a choice between production schedules A and B. A may have the lower cash and accounting costs but is extremely distasteful to the work force. Although A may minimize costs in the short run (and thus maximize short-run profits), it will also increase the probability of labor problems—strikes, slow-downs, damage, and so on. Thus, it is conceivable that B is the superior policy from the standpoint of the wealth maximization criterion.

The corporation, as it allocates its fund for the proper asset investment, should select those assets that will provide the maximum present value to the common stockholders. The present value of a specific choice depends upon the cash flows expected from the present to the end of the planning horizon. The reliability of these expectations determines the appropriate rate at which we will discount future cash flows. The less reliable the expectations and the riskier the alternative, the higher the discount rate. Thus, socially or politically hazardous choices may have low values because of either small expected future flows or the low level of reliability of the expectations or both.

It is commonly observed that a given investment is more attractive to some companies than others. This is due to the lack of perfect markets in both factor and product markets. These imperfections, plus the uniqueness of the managerial skill, explain the specialization of firms into particular industries.

MODERN THEORY

Debt

The modern era of finance theory can be dated from the publication of the first of a series of articles by Modigliani and Miller.¹ They advanced the theory that if we assume perfect capital markets, no taxes, and no growth, there is no way that the financing

decision (bonds versus equity) can have any effect upon the total value of the firm.

The assumption of perfect capital is crucial to their analysis and, therefore, deserves some careful consideration. The necessary conditions for a perfect market are: (1) no transaction costs; (2) no barrier to entry; and (3) the inability of one buyer or seller to influence the price of the commodity. For any single financial asset, conditions (2) and (3) are met and (1), transaction costs, can be shown to be similar to transportation costs, which do not destroy the perfect market assumption. But Modigliani and Miller and later modern theorists go beyond this and state that all equities can be viewed as being traded in one perfect market. Since to the investor an investment in any financial asset provides the same kind of reward—an uncertain future return—there is a set of prices that can and would be set in the market place so that all equities are perfect substitutes for one another. The same argument can be applied to the bond market.

Thus, to the managerial investor all forms of debt become perfect substitutes for each other. Thus, the investor substitutes personal leverage in the form of margin notes or home mortgages for the debt of the corporations whose equities he holds. From the corporation's point of view, the perfect capital market assumption implies that there are no

1. Franco Modigliani and Merton Miller, "The Cost of Capital, Corporation Finance, and the Theory of Investment," *American Economic Review* (June, 1958). The article attracted several worthwhile comments. The most widely noted are David Durand, "The Cost of Capital, Corporation Finance, and the Theory of Investment—Comment," *American Economic Review* (September, 1959); J. Fred Weston, "A Test of Capital Propositions," *Southern Economic Journal* (October, 1963). Later articles or comments by Modigliani and Miller appeared in the *American Economic Review* (September, 1958; June, 1963; and June, 1966), and in the *Journal of Business* (October, 1961).

Also see John Lintner, "Dividends, Earnings, Leverage, Stock Prices, and the Supply of Capital to Corporations," *Review of Economics and Statistics* (August, 1962), for a comprehensive but complex article taking issue with some of Modigliani and Miller's arguments. These articles represent but a fraction of the research in this area.

TABLE 1

Comparison of Companies X and Y

	X	Y
Assets (book value)	\$1,000,000	\$1,000,000
Net operating income	150,000	150,000
Interest	30,000*	0
New income available for common stock	120,000	150,000
Dividends	120,000	150,000
Price of common earnings	12	10
Value of common stock	1,440,000	1,500,000
Value of bonds	500,000*	0
Total value of firm	\$1,944,000	\$1,500,000

*Total of \$500,000 in bonds outstanding at 6 percent interest; assumes no taxes.

ways for it to differentiate its financial assets (common stock and bonds) from other financial assets given the investments of the corporation (the corporation's assets).

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Thus, the corporation is an aggregation of real assets that generate a stream of net operating income. This stream and its risk characteristics determine the total value of the corporation as a going concern. If all forms of debt are perfect substitutes, then the corporation can neither adopt a debt policy that the investor cannot undo nor adopt a debt policy that the investor cannot arrange by himself. If two firms hold assets that are identical in terms of the expected returns and variation of these expectations, their worth will be proportionate to their size and independent of their financing. The important distinction to remember is that the modern theory states that the advantage of corporate leverage is provided by the tax code and possibility of bankruptcy and not by any mystical process where the sum of the parts (debt and equity) are worth more than the whole (the going concern value of the assets of the firm).

As an example of how Modigliani and Miller's theory would work, let us describe two firms, X and Y. We will assume that the two firms have had identical rates of return

TABLE 2

Effects of Switch from X to Y

	Before	After
Investor's equity	\$14,400	\$14,400
Debt via corporate ownership	5,000	0
Debt via personal borrowing	0	5,000
Stock held	14,400	19,400
Income received	1,200	1,940
Interest paid (personally)	0	300
Net income	1,200	1,640
Total debt equity	\$5,000/14,400	\$5,000/14,400

and identical uncertainty of that rate of return, and that there is a perfect capital market where all debt instruments are perfect substitutes for each other. Then it can be shown that the value of these two firms must, in equilibrium, be proportional to the size of their assets.

In order to show how this equilibrium would be maintained, we will start with a levered firm selling at a higher total value than its identical but unlevered counterpart (see Table 1). We will then describe the transactions that a rational investor in the "over-valued" security would undertake.

Assume that an investor owns \$14,400 worth of stock in Company X; his income is \$1,200 and, as a 1 percent owner, he is in essence a borrower of 1 percent of the debt of Company X or \$5,000.

This investor can sell his \$14,400 of Company X stock, borrow \$5,000 at 6 percent from his bank, and purchase \$19,400 of the common stock of Company Y. The investor's financial positions before and after this switch are summarized in Table 2.

If the above mechanism, which Modigliani and Miller call arbitrage, is available to the investors in the stock of Company X, they will have every incentive to attempt to use it. Table 2 shows how an investor who originally had \$14,400 invested in the equity of the levered Company X is in essence a borrower

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of \$5,000 via his proxy, Company X. If he in turn can sell this investment, borrow \$5,000 on his own, and buy \$19,400 of Company Y stock after paying the interest on his loan, he has increased his net income by \$440, while his total leverage has remained \$5,000 in debt for a \$14,400 equity investment.

Since it was assumed that X and Y were identical in the uncertainty of their net operating incomes, the investor's uncertainty as to his income streams is identical for both investors. Thus, we see that the rational investor in Company X will sell his stock and purchase stock on margin in Company Y. This process will go on as long as the total value of X is greater than Y. But this process will force the value of Company X down as investors sell, and the value of Company Y will rise as investors buy.

Thus, Modigliani and Miller described how, under their assumptions, an investor could in essence substitute his debt for the debt of a corporation so as to profit from any disparity in value between two firms identical in every way except the amount of debt in their capital structure. Most crucial to the analysis is the assumed indifference of an investor between borrowing personally and borrowing via the corporation. Since the latter method of borrowing places the corporate entity between the stockholder and the holder of debt instrument, the limited liability feature of the corporation makes borrowing via the corporation relatively more attractive.

Note that the theory initially assumed that there were no taxes, no growth, and perfect capital markets. In later writing, these assumptions were relaxed so that taxes, uncertainty, and growth were accounted for.

The final status of the Modigliani and Miller theory is that as long as the threat or probabilities of bankruptcy exists, there is not a perfect substitutability of personal for corporate debt.

There is advantage for corporate debt via the income tax treatment of the corporation's interest expense. Because this expense is deductible, it is advantageous for firms to borrow as opposed to letting the individual “roll his own” leverage via margining his securities. The important distinction to remember is that the modern theory states that the advantage of corporate leverage is based on the tax code and possibility of bankruptcy, and not due to any mystical process where the sum of the parts (debt and equity) are worth more than the whole (the going concern value of the assets of the firm).

Dividends

With respect to dividend policy, Modigliani and Miller advanced the argument that any artificial division of the benefit stream, earnings into retained earnings, and dividends should have no material effect on the worth of the enterprise.² They proposed a mechanism similar to their arbitrage argument for debt: if a stockholder desires dividend larger than is currently being paid, he can sell some of his holdings to increase his current cash position at the expense of his investment position. Thus, the investor has control of his relative position of investment versus income. This argument is quite sound if we assume no transaction costs, no personal taxes, and no uncertainty as to future stock prices. The reverse procedure holds, that is, that if the dividend is too large, the investor can always reinvest some proportion of his quarterly dividend.

If the investor is in a high tax bracket, it

2. Merton Miller and Franco Modigliani, “Dividend Policy, Growth, and the Valuation of Shares,” *Journal of Business* (October, 1961).

will be advantageous for him to hold low dividend securities while those investors who look toward their security holdings as sources of current income have an incentive to hold high dividend securities. These incentives take the form of avoidance of the uncertainties of the stock market as mechanism for converting security wealth into cash, and the avoidance of the transaction costs incurred in the conversion. Thus, we can see that some investors may have strong preferences as to holding of equities of companies with a similar dividend policy.

The existence of these preferences does not mean that a corporation can increase its value by changing its dividend policy. As stated simply, the existence of these preferences does not necessarily imply that there is an optimal dividend policy for a firm.

Is this an anomaly? How can this be? First, let us assume that at the present the stock market is in equilibrium—money is not flowing from stocks with one kind of dividend policy into stocks with another. If this is true (Elton and Guber provide evidence of this³), then we can visualize that securities with a given dividend policy are held by investors who are satisfied with that particular policy. This effect is called the clientele effect; for each security there is a clientele that desires to hold it. In equilibrium there is nothing to be gained by a corporation from a change in its dividend policy, for when they do this they are abandoning their clientele in the hope of encroaching on another.

Why pay dividends at all? Why not let each would-be clientele make their own dividend policy via partial sales? The argument has been made that dividends, of and by themselves, are desirable, but yet many empirical studies have shown that the major value of a dividend payment is due to the information it conveys about the future earnings of the firm. This is known as the

“informational contact” of dividends. The premise behind this is that the action of the board of directors in declaring and paying a dividend conveys confidence as to the viability of the assets and their profitability. It is this information that is valued and not the fact that the corporation has sent the stockholder a portion of his *own* wealth.

Investment Policy

The choice of assets has been traditionally linked to the area that most differentiates one corporate entity from another, and modern theory has not challenged this. Modigliani and Miller stated in their original article that the irrelevance of debt (assuming no taxes, perfect markets, and so on) depended upon the existence of “equivalent return classes.”

These classes were made up of firms with operating incomes that differed only by a scale factor across all possible outcomes. This means that two firms in the same class will maintain the relationship between their operating earnings regardless of the state of the economy, interest rates, aggregate demand, income distribution, or any other factor. Obviously, this implies that firms in the same class have similar assets, and that the selection of assets determines the class and thus the value of the firm.

In a developed and diversified economy, such as ours, where some firms produce assets and others purchase them in order to produce either other goods (assets) or services, it is implied that the purchasing firm can use the asset to greater economic advantage than the seller. In other words, the purchaser places a higher value on the asset than the seller. This differential value exists because of imperfections in the economy. Thus, General Motors produces a truck and sells it to Yellow Freight because Yellow Freight, which has an existing fleet, routes, and terminals, can earn more by using the truck than can GM. These imperfections can be legal, economies of scale, patents, geographical location, unique

3. Edwin J. Elton and Martin J. Gruber, “Marginal Stockholder Tax Rates and the Clientele Effect,” *Review of Economics and Statistics* (February, 1970), pp. 68-72.

"Modern theory predicates that a good decision . . . increases the wealth of the stockholder."

sources of either raw material or labor inputs, or unique entrepreneurial skill.

It is possible for a firm to invade the domain of either its supplier or customer via vertical merger and integration. This path has been growing more difficult as the antitrust laws are applied more readily. The expansion of a firm at a rate greater than its industry eventually will involve the absorption of some of its competitors through horizontal mergers. This route has also been narrowed by the antitrust activities of the Justice Department.

The most recent mode of expansion in the spotlight has been the conglomerate merger. When a firm purchases another whose business is not related (neither vertical or horizontal integration occurs) a conglomerate merger has taken place. These mergers have been relatively exempt from regulation since they do not appear a priori to lessen competition. The conglomerate merger is often defended and defined as being strictly a financial combination in which the stockholders of both firms benefit, leaving the customers and suppliers of both firms essentially unaffected. Modern finance theory has some relevant applications for this form of investment.

Modern theory predicates that a good decision is one which increases the wealth of the stockholder. Modigliani and Miller advocate that certain decision areas can be left to the stockholder if the capital markets are perfect markets, that is, if individual participants in the market, whether corporations or individuals, have equal and non-discriminatory access to the market. With these points in mind, let us view two firms, A and B. Firm A seeks to form a conglomerate with B. Both are valued in the stock market. Let us assume that A has a higher price earnings multiple than B, a common situation. The commonly accepted logic is that A buys

B and that their combined earnings will be capitalized at the higher multiple.

If the capital markets are perfect, then the stockholders of A have always had the opportunity to become stockholders in B by the simple and direct method of individually adding the stock of B to their individual portfolios. If they have this opportunity, then it is not clear at all why it should be to their advantage for A, acting as their proxy, to purchase stock in B at a price higher than the prevailing price of B. The defense for evaluating the conglomeration A-B at a higher value than sum of the individual value of A and B is that, first, A will change the management and/or operation of B, and, second, the combination A-B will achieve financial diversification for the stockholders.

The answer to the first argument is that, if there is a management change or a classical turnaround situation, then there may be reason for increased value to be placed upon the conglomerate. But the past success of management changes has been far from assured and the resulting value is open to serious question. If the changes are of the nature of product or supply line assimilation, then we are really talking about either a horizontal or vertical merger, which do have value. The second point is answered by raising the counter question: if the capital markets are perfect, how can this diversification be purchased by A at a lower price than by the individual stockholders of A?

Thus, modern finance theory would say that a combination of A and B would not create additional value unless some change in the operations of the two firms takes place. A strictly financial combination cannot increase the value since the stockholders via their personal stock portfolios can always achieve this financial diversification.

Thus, there must be some imperfection in

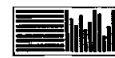
the capital market that can be exploited to justify the increase in value. The concept of financial synergism is based on the idea that a combination of two relatively independent but uncertain operations will produce a lower level of uncertainty in relationship to the gain. This lower relative risk can be translated into a debt policy question by showing that a combination can thus make greater use of debt and yet remain at the same total risk level. By doing this, the combination or conglomerate is in essence exploiting the tax advantage of debt.⁴

A related concept is that the combination has a lower probability of bankruptcy strictly due to the increased size.⁵ This is analogous to the concept in inventory management that the safety stock of a good increases less than proportionate to the demand. Thus, a large grocery store with twice the demand for eggs as a small store does not have to stock daily twice the amount of eggs as the smaller store in order to maintain the same probability of stockout.

In the case of the financial conglomerate, bankruptcy is nothing more than a stockout of liquidity. Thus, the financial conglomerate may have a lower probability of bankruptcy than either firm individually. Funds or liquidity will flow more freely between the

pseudo-independent entities of a conglomerate than they would if these units were truly independent. This condition is itself an imperfection in the capital market.

It is generally accepted that a corporation owes its existence to the fact that it can operate in the factor and product markets more efficiently than the individual investor. If this were not true, then the stockholders of GM, for example, could build cars in their backyards and have as high a return on their investment at as low a risk as they achieve via their investment in GM's stock. This is analogous to the conclusion on conglomerates: if the conglomeration is just a financial combination and capital markets are perfect, then the stockholders of A and B do not need their corporations serving as proxies.



The major impact of modern finance theory has been to make the analysis of strategy options more orderly. Knowledge that the capital markets are, in themselves, near perfect, forces the justification of basing many options on specific imperfections such as taxes and the risk of bankruptcy.

Thus, we see that modern financial theory has done nothing more than state that extraordinary opportunities are the exploitations of market imperfections. This is well recognized in both marketing and production where the function is to recognize and/or create imperfections (via marketing research, advertising, and research and development) and then exploit these through pricing and production. The same holds true in finance. The financial markets, by the very nature of their structure and the characteristics of their products—risk and return—are less likely to have major recognizable imperfections.

4. Robert Litzenger and Donald Tuttle, "Financial Synergism and the Maximum Price for an Acquisition," presented before the Southern Finance Association, November, 1971.

5. Haim Levy and Marshall Sarnat, "Diversification, Portfolio Analysis, and the Uneasy Case for Conglomerate Mergers," *Journal of Finance* (September, 1970). Also see Wilbur G. Lewellen, "A Pure Financial Rationale for the Conglomerate Merger," *Journal of Finance* (May, 1971); and John Lintner, "Expectations, Mergers, and Equilibrium in Purely Competitive Security Markets," *American Economic Review* (May, 1971).