FINANCIAL EDIFICATION IN A 21st CENTURY ECONOMIC ENVIRONMENT

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ABSTRACT
Economics and finance are related disciplines, but they are distinct enough such that many practicing economists, especially in academia, do not have a firm grasp of fundamental financial concepts. Many economics textbooks, especially microeconomic oriented books, now include certain financial topics within them. It is becoming almost a necessity for economists to have knowledge of financial concepts. This paper serves as an introduction of some broad, important concepts in finance that would be of interest to an economist. An emphasis on long term financial themes is given here. Long term financial decisions involving dividends and the use of debt and equity are stressed.

INTRODUCTION
The purpose of this paper is to explain to individuals teaching economics some of the basics of long term financial decisions. Many times academics or professionals trained in economics do not have any type of background in finance. This disconnect prevents utilizing many financial applications in their own classes, in their own businesses or with their own research. This work serves as an introduction to a few major concepts in finance that individuals can use as a starting point to additional research, study or use in teaching. Many of the foundational research efforts in finance are provided here as well.

GENERAL FINANCIAL CONSIDERATIONS
Business firms, especially firms organized as corporations, are faced with two major financial decisions. First, a firm must decide on which investment projects to undertake. Second, firms must decide how to finance these projects and how to use any positive earnings generated by these endeavors. When making these decisions it is assumed that the firm has a particular goal in mind (Huang & Litzenberger, 1988). There are three traditional objectives that a firm can attempt to undertake (Keown, Martin, Petty & Scott, 2001). These are:
1) Maximize shareholder wealth.
2) Maximize the market value of the firm. (Value of equity plus debt.)
3) Maximize economic profits.

It can be shown that the first two goals are equivalent when either there is zero debt or the debt is assumed to be riskless, otherwise they are different. Goals 2 and 3 are equivalent when a firm is presumed to maximize profits each and every period. Fama (1978) argues that the appropriate goal is to maximize the market value of a firm. There are internal and external pressures on managers within a firm to accomplish this objective in lieu of only maximizing shareholder wealth. I have prepared an illustrative example to demonstrate Fama's conclusion regarding the

appropriate goal of a firm. Assume there are two investments plans that a firm can undertake as illustrated below.

	Value of Debt	Value of equity	Firm Value
PLAN 1	$200	$200	$400
PLAN 2	$190	$205	$395

From the table it is apparent that PLAN 1 maximizes the value of the firm and PLAN 2 maximizes shareholder wealth. Internal pressures arise if PLAN 2 is undertaken, because an arbitrage opportunity is available. Bondholders can buy all the stock for $205 and then instruct the mangers to switch to the first plan, thus profiting $5 instantly. External pressures exist, because an outsider can step in and by the entire amount of debt and equity for $395 if the firm follows PLAN 2 and then turn around and instruct management to follow PLAN 1, thus again profiting the $5 at no risk. Therefore, it will be assumed for the remainder of this paper that firms seek to make decisions that maximize the value of the firm. This of course presumes that decision makers within the firm and within the market behave in a rational way.

DIVIDEND POLICY DECISIONS
When a firm has positive earnings it must decide whether or not to distribute part of the earnings to shareholders in the form of a regular cash dividend. This is the dividend policy of a firm. The literature abounds with discussions regarding whether or not the dividend policy of a firm has any impact on the value of the firm and if it does whether or not the firm should pay out a generous dividend or a lesser one (Pringle & Harris, 1984). Three main theories currently exist. The oldest theory is usually referred to as the "bird in the hand theory". This states that a high cash dividend payout will result in maximizing the market value of a firm (Gordon, 1959). Another theory, entitled the dividend irrelevancy theory, asserts that the dividend policy is irrelevant in determining firm value (Miller & Modigliani, 1961). It does not matter if a firm pays out a high dividend or a low dividend the value of the firm is not affected. Yet another, entitled the differential taxation theory contends that a zero dividend is the answer when trying to maximize the market value of a firm (Litzenberger & Ramaswamy, 1979).

The bird in the hand theory conjectures that individuals, who are assumed risk averse, prefer a dollar in dividends over a dollar in uncertain future capital gains (which is the other method of rewarding shareholders). If you have two identical firms, except that one pays a dividend and the other does not, then there will be a greater demand for the stock of the firm making the payouts and this results in a higher stock price without a negative impact on bondholders. Looking at the situation from a supply side viewpoint, a firm could increase its firm value by paying out a dividend. The optimal dividend policy is to thus pay out a generous dividend. The irrelevancy theory states that dividends cannot affect the value of a firm. It assumes that shareholders look at their whole returns and don't care how that return is packaged. In other words, shareholders are assumed to be indifferent between receiving a large unsliced pizza or a sliced large pizza as long as they were both the same size. The differential taxation theory views the correct dividend policy as being one where no dividends are remitted to shareholders. The reasoning is that when dividends are taxed at a higher tax rate than capital gains, shareholders would receive a greater after tax return on a dollar in capital gains as opposed to a dollar in dividends. Even when the tax rates are identical capital gains are still preferred, because the shareholder can time when they will actually pay the taxes. Since investors prefer capital gains over dividends, this theory suggest

that firm value would be maximized by not paying any dividends at all. If shareholders need present income they can simply sell a certain amount of shares on a timely basis. Bondholders would not be impacted by this decision.

Casual empirical evidence indicates that a variety of dividend policies have been adopted by business firms. Firms listed on the New York Stock Exchange (NYSE) pay out a wide spectrum of dividends ranging from high payouts by utilities and real estate investment trusts to zero payouts by others. Firms listed on the NASDAQ also pay out a plethora of various dividends, but tend to have lower payouts than NYSE listed stock on average. The wide range of payouts tends to support the irrelevance theory. Formal empirical evidence exist in abundant amounts and offers support for all three theories.

CAPITAL STRUCTURE POLICY DECISIONS

Deciding on the appropriate method to finance investments is another major decision that firms must make. This is known as the capital structure of a firm. A firm has three manners in which to finance long term investments (Fama & Miller, 1972).

1) Use internal funds.
2) Issue common stock. (equity)
3) Issue bonds. (debt)

The firm must choose that method which will maximize the value of the firm. It is important to note that maximizing the value of a firm implies and is implied by minimizing a firm's weighted average cost of capital (WACC) which is exemplified by the equation below.

$$WACC = R_e(\frac{E}{D+E}) + R_d(1-T_c)(\frac{D}{D+E})$$

Where R_e is the required return on equity, R_d is the required return on debt, T_c is the corporate tax rate, D is the dollar amount of debt, and E is the dollar amount of equity. The product of R_d and $(1-T_c)$ yields the after tax required return on debt.

The traditionalist school of thought on capital structure was that it did impact a firms' value (Solomon, 1963). This view saw firm value as a concave function of the debt/equity ratio of a corporation. An optimal capital structure did exist and it was one comprised of both debt and equity. This would of course also minimize a firm's WACC. This school of thought claims that equity cost more than debt due to it having a lower claim on assets in the event of a bankruptcy, thus a firm definitely shouldn't use all equity to finance their assets. As debt is utilized it becomes riskier and its' associated costs rise. There exist an equilibrium combination of debt and equity that will minimize the WACC (and thus maximize the market value of the firm).

Another theory on the capital structure of a firm is that it does not have any impact on the market value of the firm (Modigliani & Miller, 1958). They use an arbitrage proof to show that under certain assumptions the D/E ratio of a firm does not impact the market value of a firm. Their famous Proposition One makes this claim. Their Proposition Two states that a firm's cost of equity is a linear function of its' D/E ratio, thus as a firm uses more debt even though it is cheaper it drives up the cost of equity offsetting any cost savings, thus offsetting any reduction in the firm's WACC.

Other theories on the capital structure of a firm see a role for corporate and personal tax rates (Miller, 1977). Corporations can deduct any interest payments on debt, but are not allowed any favorable tax treatment for equity instruments. Individual investors pay taxes on interest payments they receive from the firm and also pay taxes on dividends and realized capital gains. Miller looks at the effects of corporate and personal tax rates on the optimal capital structure and devises the following model:

$$G_L = [1 - \frac{(1-Tc)(1-T_{PS})}{1-T_{PB}}]B_L$$

Where G_L = the gain from leverage
T_C = the corporate tax rate
T_{PS} = capital gains tax rate for individuals
T_{PB} = personal tax rate applied to income from bonds
B_L = market value of the levered firm's debt

He conjectures that under various relative tax rate schemes a firm would at times be valued more if it were all debt, at other times it would be valued more if it was all equity and at yet other times a mix of debt and equity would be preferred.

Financial distress costs such as bankruptcy and agency costs can also impact the capital structure decision of a firm (Jensen & Meckling, 1976) and (Titman & Wessels, 1988). When analyzing the effects of these types of costs a comparison between the marginal benefit (which arises due to the tax treatment of debt) of debt must be weighed against these associated marginal costs.

CONCLUSION AND SUMMARY
This paper highlighted some of the major areas of finance that should be of interest to an economist especially one involved in the teaching of economics. A good knowledge of financial theory can only enhance the teaching and research capabilities of an economist. Some background in finance can also be of great help to anyone coming out of graduate school desiring a job in either a corporation or an academic institution. Many firms look for a potential employee who has a background in both finance and economics. Many smaller colleges and universities also desire subject diversity in their faculty members.

REFERENCES

Baker, M. and Wurgler, J. (2004). A Catering Theory of Dividends. *Journal of Finance*. 59 (Jun.). 1125-1165.

DeAngelo, H. and Masulis, R. (1980). Optimal Capital Structure Under Corporate and Personal Taxation. *Journal of Financial Economics*. 8 (March). 3-29.

Easley, D. and O'Hara, M. (2004). Information and the Cost of Capital. *Journal*

of Finance. 59 (Aug.). 1553-1583.

Fama, E.F. (1978). The Effects of a Firm's Investment and Financing Decisions on the Welfare of it's Security Holders. *American Economic Review*. 68 (June).272-284.

Fama, E. and Miller, M. (1972). *The Theory of Finance*. Florida: Dryden Press.

Francis, J.C. (1986). *Investments*. (4th ed.). New York: McGraw-Hill.

Gordon, M. (1959). Dividends, Earnings and Stock Prices. *Review of Economics and Statistics*. 41 (May). 99-105.

Huang, C. and Litzenberger, R.H. (1988). *Foundations for Financial Economics*. New York: North-Holland Press.

Jensen, M. and Meckling, W. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*. 3 (Oct.).305-360.

Keown, A., Martin, J., Petty, J. and Scott, D. (2001). *Foundations of Finance*. (3rd ed.). New Jersey: Prentice Hall.

Litzenberger, R.H. and Ramaswamy, K. (1979). The Effect of Personal Taxes and Dividends on Capital Asset Prices. *Journal of Financial Economics*. 7 (June).163-195.

Miller, M. (1977). Debt and Taxes. *Journal of Finance*. 32 (May). 261-275.

Miller, M. (1988). The Modigliani-Miller Propositions After Thirty Years. *Journal of Economic Perspectives*. 2 (Fall). 99-120.

Miller, M. and Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. *Journal of Business*. 34 (Oct.). 411-433.

Miller, M. and Scholes, M. (1978). Dividends and Taxes. *Journal of Financial Economics.* 6 (Dec.). 333-364.

Myers, S. (2001). Capital Structure. *Journal of Economic Perspectives*. 15 (Spring). 81-102.

Pringle, J. and Harris, R. (1984). *Essentials of Managerial Finance*. Illinois: Scott, Foresman and Company.

Solomon, E. (1963). *The Theory of Financial Management*. New York: Columbia University Press.

Stiglitz, J. (1969). A Reexamination of the Modigliani-Miller Theorem. *American Economic Review*. 59 (Sept.). 784-793.

Titman, S. and Wessels, R. (1988). The Determinants of Capital Structure Choice. *Journal of Finance*. 43 (March). 1-19.

Warner, J. (1977). Bankruptcy Costs: Some Evidence. *Journal of Finance*. 32 (May). 337-347.