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wamy [6] and Miller and Scholes [9]. However, the results of these former studies are more satisfactory than table 3 because beta, which was estimated on past data and updated through time, was included explicitly. If beta changes through time and if no attempt is made to adjust for changes in beta, then it is not surprising that dividend yield on non-ex-days is significant—especially since dividend yield appears to be correlated with beta (Black and Scholes [1]). The issue is whether or not dividend yield on a non-ex-day is statistically important after some attempt is made to control for changes in beta; table 3 fails to include any changing measure of beta.

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DISCUSSION

E. HAN KIM*: In contrast to the papers presented in this session which deal with the demand side of corporate dividends, the paper by John and Kalay looks at the supply side. It examines one possible determinant of dividend payout policy, and studies the properties of dividend constraints imposed on firms that have a positive amount of debt outstanding. Overall, the model is carefully constructed and the mathematical derivations are rigorous. Although the results are not surprising, they do provide some insight as to the role of dividend constraints in resolving the possible conflict of interest between stockholders and bondholders. However, the paper is written in an overly technical style and hence is difficult to follow. I will attempt to outline the main results of the paper and explain the intuition behind them. In addition, a couple of conceptual problems will be pointed out.

The underlying issue that forms the foundation of the model in the John-Kalay paper is the possible conflict of interest between stockholders and bondholders that arises in connection with corporate dividend policy. A positive dividend

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represents an indirect increase in a firm's debt/equity ratio if the firm has a positive amount of debt outstanding, and *ceteris paribus*, the "leverage effect" of dividends creates a transfer of wealth from bondholders to stockholders. This is a well-recognized issue in the literature. Fama-Miller and Black-Scholes have defined such phenomena as a "me-first" rule problem, and Kim-McConnell-Greenwood have demonstrated that such wealth transfers do indeed occur when there are changes in firms' capital structures.¹ Subsequently, Jensen-Meckling and Myers extended the "me-first" rule problem and demonstrated that agency costs of debt may arise; that is, the possibility of wealth transfers may induce firms to adopt a suboptimal investment policy and monitoring and bonding costs may be required.

The contribution of this paper is its integration of the "me-first" rule problem and the agency cost possibility with the issue of corporate dividend policy. The authors argue that when investors price financial assets rationally, stockholders must bear the entire *ex-ante* agency costs of debt, and hence it is in the stockholders' self-interest to impose constraints on dividend payouts. In their scenario involving costly recontracting, the dividend constraints written in bond covenants dictate the extent of future deviations from the value-maximizing investment policy. The optimal constraints represent the optimal trade-off point at which the agency cost of debt is minimized. This paper derives the conditions for the optimal constraints and examines their properties.

In the John-Kalay environment, the stockholders and bondholders possess identical information initially but, with the passage of time, bondholders' information about the firm declines relative to that of stockholders, presumably because of the costs incurred in monitoring and verifying the firm's performance. This asymmetry, which is equivalent to assuming costly recontracting, makes it impossible to create a complete set of state-contingent dividends. That is, the market for dividend contracting is "incomplete" and the agency cost of debt cannot be completely eliminated. The authors find that the optimal set of dividend constraints should become "flexible" when "things are good," but should be "binding" when "things are bad." When the constraints become flexible, stockholders are allowed to make investments which maximize their wealth. Since these investments do not deviate substantially from the value-maximizing set of investments when the firm is doing well, the *ex-post* agency costs of debt tend to be small. When the constraints become binding, however, the shareholders are forced to make more investments than the value-maximizing investment policy calls for. Since the authors assume a limited supply of projects with nonnegative Net Present Values (NPV), the binding constraint would require the firm to undertake negative NPV projects, thus engendering the agency cost of debt.

However, the notion that such "forced" overinvestment will result in negative NPV projects seems to be more of an artifact of the authors' assumptions than a reality. Since firms have the option of investing in financial assets, firms with binding constraints will invest in negative NPV projects only if investments in financial assets are also negative NPV projects. The authors point out that the

¹ For these references see the John and Kalay paper.

tax advantage of corporate borrowing means a tax disadvantage for corporate lending. As a result, corporate investments in financial assets are negative NPV projects. However, the scope of financial assets in which firms can invest should not be restricted to interest bearing securities. For example, firms can and do invest in other firms' stocks, and the 85% dividend exclusion for tax purposes makes inter-corporate investment virtually tax-free.

Notwithstanding this superficial restriction on firms' investment opportunities, I find the characterization of the optimal dividend constraints by the authors quite appealing because it is consistent with the dictums of common sense regarding what the characteristics of sound contractual arrangements should be. Specifically, contracts should constrain the behavior of the party under contractual obligation when the outcome is not favorable to the other party, but allow the obligated party to pursue alternatives favorable to his own self-interests when the situation is positive. In other words, when the "economic pie" is growing, everyone will gain and the potential conflict among different interest groups will be a relatively unimportant issue. In such a situation, it would be unwise to impose a constraint that might hinder the growth of the pie. However, when the pie either stops growing (the situation becomes a zero sum game) or starts shrinking, the conflict among different interest groups may become severe enough to warrant a binding constraint, even though the constraint may reduce the size of the pie even further.

John and Kalay also compare the implications of their model with the actual dividend constraints included in bond covenants. They find that "direct" constraints are "flexible," while "indirect" constraints may be both "flexible" and "binding." These findings are quite informative and enhance our understanding of how dividend constraints are implemented in practice.

Another interesting result of this paper is that highly levered firms are more likely than firms with low leverage to pay out the maximum allowed dividends. The intuition behind this result is rather straightforward; the greater the amount of debt outstanding, the more wealth there is that can be transferred away from bondholders. As a consequence, the agency problem will become more severe and the constraint is more likely to be binding. Although the paper presents no solid empirical evidence of this result, the authors cite Kalay's work as support for the hypothesis. Such a finding would be consistent with the hypothesis that the agency cost of debt is significant enough to affect corporate financial policy.

Throughout the paper, John and Kalay require the following two assumptions: (1) shareholders must bear the entire ex-ante agency cost of debt and (2) there is a positive tax advantage of debt. Although the first assumption is a standard one in the agency and bankruptcy cost literature, the second one is difficult to justify in light of Miller's [2] "Debt and Taxes." The authors acknowledge this problem and cite the work by DeAngelo and Masulis which justifies the positive tax advantage of debt in the presence of differential personal income taxation between stocks and bonds. However, differential taxation complicates the issue considerably. As pointed out by Miller [2] and further elaborated upon by Kim [1], when there are leverage-related costs (e.g., bankruptcy and agency costs and loss of nondebt tax shields) in a world of differential personal income taxes, the bondholders must bear at least part of the ex-ante leverage-related costs. Consequently,

the question of whose incentive is relevant in setting the constraints may not have an obvious answer. This in turn brings into question the generality of the John-Kalay model.

It has been shown elsewhere that bondholders bear the ex-ante costs of leverage only from the aggregate perspective of determining the general equilibrium expected rate of return on corporate bonds. But at the individual firm level, bondholders still price out the leverage-related costs and individual firms face interest rate schedules that are increasing functions of these costs. (See Kim [1] for a more detailed discussion on this point.) As a result, it is still in the stockholders' self-interest to impose constraints on firms' dividend policies. Although the authors do not consider an equilibrium in a world of differential personal income taxation, their results appear to be valid when personal taxes are included. Nevertheless, an explicit treatment of differential personal taxes within their framework would have strengthened the analyses and could have provided additional understanding of the subtleties of dividend contracting.

In conclusion, the paper provides some interesting insights as to the use of dividend constraints to resolve the possible conflicts between stockholders and bondholders. John and Kalay should be commended for their efforts in investigating and incorporating recent developments of the "me-first" rule and the agency problems into the issue of corporate dividend policy. However, a more rigorous treatment of how stockholders and bondholders decide on dividend payout constraints and their role in resolving the agency problem in a world of differential personal income taxation remains an interesting issue for further research.

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