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1. INTRODUCTION

Four decades of research on capital structure has not conclusively answered the basic question of whether there is an optimal mix of debt and equity at the level of the firm. Textbooks present the issue as a problem of balancing the gains from leverage with the expected costs of bankruptcy (Gitman 2000, Ross, Westerfield and Jaffe 1999, Damodaran 1997, Altman 1993). Following the trade-off theory and using data from the Johannesburg Stock Exchange (JSE) Negash (2001) reported the insignificance of the net gain that may be stemming from increased use of interest bearing debt. When bankruptcy related costs were not invoked, the size of the present value of the tax shield over a perpetual period was comparable to the results obtained in NYSE based studies. The gain from leverage was estimated at between 13 and 18 percent of the market values of the firms in the sample. This paper extends the previous work on JSE and addresses the vexing issue of whether Miller's (1977) equilibrium theory is holding under existing tax code and capital structure irrelevancy is a feasible firm level policy.

In the presence of only corporate taxes capital structure irrelevance theory no longer holds unless the firm's marginal tax rate is zero. The corollary is that if corporate tax rate is different from zero, then taxes do not only affect financing decisions. The tax code may provide preferential treatment for (certain types of) investments. Further, investment and financing decisions may not be independent of one another. That is, the well-known Fisher's separation theorem no longer holds as investment and financing decisions cannot be realistically decoupled. Therefore, the need for the simultaneous consideration of investment and financing decisions and the interactions thereof becomes important.

DeAngelo and Masulis (1980) extend Miller's (1977) work and examine the effects of non-debt related tax shields on capital structure. They show that Miller's irrelevance (indeterminacy) theory is sensitive to realistic situations, such as the modification(s) of tax codes. More specifically, they show that the existence of non-debt related corporate tax shields, such as depreciation, is sufficient to overturn the leverage irrelevancy theorem. They state that optimal capital structure is feasible at the individual firm level. Hence, corporate tax is central to the theory of capital structure.

Dammon and Senbet (1988) criticize DeAngelo and Masulis (1980) in that the model (only) partially recognizes the interaction between real and financial decision variables of the firm. Dammon and Senbet (1988) state that DeAngelo and Masulis did not fully incorporate the productive side of the economy and non-debt tax shields are exogenous in the model. The critique provides what it claims to be a more realistic look of the problem and shows that investment and optimal level of non-debt tax shields are endogenous. Thus, the endogenous- exogenous dichotomy adds another dimension to the debate on capital structure.

In a related work, Hodder and Senbet (1990) extend Miller's (1977) equilibrium theorem to the international setting. The stylized analysis was done in the context of perfect markets, differential international taxation and inflation. They state that if corporations engage in international tax arbitrage, no optimal capital structure exists for an individual firm. Thus, Hodder and Senbet (1990) show that Miller's equilibrium analysis can be extended to the international setting. They concluded that differences in international tax rate alone are incapable of dictating a particular capital structure for an individual firm. On the empirical side, gearing ratios cannot be expected to be the same in different tax jurisdictions. Textbooks, for example Gitman (2000:505) and Brealey and Myers (1991), contain figures that show relatively higher level of debt for firms that are based in Europe and Asia. Rajan and Zingales (1995) reported that aggregate level permanent debt capital ratio in the G7 countries had been fairly similar over the 1984-1991 period. Ceteris paribus the Rajan and Zingales (1995) report, economists attribute the difference to extent of financial intermediation, differences in institutional structures governing bankruptcy policy, debt renegotiation and differences in the market for corporate control. The literature on international accounting adds accounting method differences as an additional explanation.

Studies that estimate the tax benefit of leverage followed the spirit of Modigiliani and Miller (1963). Kane, Marcus and McDonald (1984), Titman and Wessels (1988) and Fama and French (1998) estimate the value of the firm and the size of the tax shield from leverage assuming that the value function is linear; $V_L = V_U + T_c B^*$, where V_L and V_u respectively are the value of levered and unlevered firms. T_c is marginal corporate tax rate and B^* is the market value of corporate debt. Thus, over a perpetual period $T_c B^*$ is

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