Pacific-Basin Finance Journal 19 (2011) 21–40

Contents lists available at ScienceDirect

Pacific-Basin Finance Journal

journal homepage: www.elsevier.com/locate/pacfin

Optimal dividend policy, debt policy and the level of investment within a multi-period DCF framework

Martin Lally

School of Economics and Finance, Victoria University of Wellington, PO Box 600, Wellington, New Zealand

ARTICLE INFO

Article history:
Received 7 January 2010
Accepted 13 August 2010
Available online 21 August 2010

JEL classification:
G31
G32
G35

Keywords:
Optimal dividend policy
Optimal debt policy

ABSTRACT

This paper simultaneously analyses optimal dividend, debt and investment policy within a conventional multi-period DCF framework, and takes account of differential personal taxation over both investors and types of income, the effect of dividends and interest on the level of share issues and hence share issue costs, and the effect of dividends and interest on the level of internally-financed investment. Application of the model to three distinct tax regimes reveals that the value benefit from debt is small at best whilst the value benefit from dividends is substantial even in a regime without dividend imputation.

© 2010 Elsevier B.V. All rights reserved.

1. Introduction

Consideration of optimal dividend policy and capital structure commences with Modigliani and Miller (1958, 1961, 1963), who show (separately) that debt is desirable and that dividends are irrelevant to a firm's value if (inter alia) all forms of personal income are equally taxed. DeAngelo and Masulis (1980a) extend this analysis to recognise personal tax rates that vary over both investors and sources of income; they also simultaneously consider optimal debt policy, which is desirable because dividends and interest are alternative means for disbursing internally-generated cash flow to investors. They conclude that debt is irrelevant but dividends may be relevant to a firm's value. Fung and Theobald (1984) extend this analysis to dividend imputation systems. However, both of the latter two papers treat "internally-financed" investment (i.e., that which is internally-financed and would not otherwise have been undertaken) as having zero NPV, and they ignore the implications of dividends for the level of share issues with their associated issue costs. In addition, the analysis in both papers is single rather than multi-period, and invokes a state-preference approach rather than a risk-adjusted discount rate. Whilst these last two features are useful for the purpose of assessing issues at an abstract level, the first of them is considerably less realistic, and the second considerably more difficult to implement, than the multi-period DCF framework that is generally employed for capital budgeting decisions.

E-mail address: Martin.lally@vuw.ac.nz.

0927-538X/$ – see front matter © 2010 Elsevier B.V. All rights reserved.
doi:10.1016/j.pacfin.2010.08.002

Masulis and Trueman (1988) also recognise personal tax rates differing over both investors and types of income and, unlike the previous papers, recognise that “internally-financed” investment may not have zero NPV. Boyle (1996) extends this analysis to tax regimes with dividend imputation. However, the analysis in both papers does not simultaneously consider debt policy nor does it take account of the implications of dividends for the level of share issues with their associated issue costs. In addition, as with DeAngelo and Masulis (1980a) and Fung and Theobald (1984), the analysis is single rather than multi-period, and invokes a state-preference approach rather than a risk-adjusted discount rate.

In a related paper focusing upon the tax benefits of debt and recognising that the corporate tax deduction on interest is not always usable or immediately usable, Graham (2000) concludes that significant levels of debt appear to be optimal for tax reasons and add significantly to firm value. However, he does not simultaneously optimise dividend policy and he assumes that dividends are paid in the conventional form rather than in the tax-preferred form of share repurchases (ibid, p. 1912).

Green and Hollifield (2003) overcome many of the limitations in this earlier work. In particular, they simultaneously optimise debt and dividend policy for a given level of “externally-financed” investment (investment that is viable even if it is externally-financed), they recognise differential personal taxation over different types of income (but not investors), they recognise that “internally-financed” investment may not have zero NPV, their model is of the multi-period DCF form, and they recognise the bankruptcy costs arising from debt.[1] Furthermore, their model dynamically accounts for investors' exercise of the deferral option relating to the payment of capital gains tax and also dynamically accounts for the firm's exercise of the bankruptcy option (with associated bankruptcy costs). However these last two features of the model are inconsistent with the conventional DCF framework that is generally employed for evaluating “externally-financed” investment projects, in which bankruptcy costs are recognised ex-ante through the cost of debt, and there is typically *no* allowance for differential taxation of interest, dividends and capital gains, let alone allowance for the deferral option in respect of capital gains tax.[2] The use of one model of firm value for the purposes of optimising debt and dividend policy (and therefore the level of “internally-financed” investment), and a different model for optimising the level of “externally-financed” investment is unsatisfactory, because it effectively evaluates two types of investment using different methodologies and because the output from the first optimisation exercise *ought* to be incorporated into the second one.

In view of these points, this paper seeks to develop a valuation model for the purposes of simultaneously optimising the level of debt, the level and type of dividends, and the level of “externally-financed” investment. The model must recognise significant real-world features that are relevant to optimising each of these policies and must also be readily amenable to implementation. The essential features of the model are as follows. Firstly, consistent with standard practice in evaluating investment projects, the model is of the multi-period DCF form with a risk-adjusted discount rate of the WACC form, and therefore allows for bankruptcy costs ex-ante through the cost of debt.[3] Secondly, consistent with the importance of personal taxes to optimal debt and

---

[1] “Externally-financed” investment is that which is justified even if externally financed but this does not necessarily imply that it is actually externally-financed, i.e., it might be partly or wholly financed from internally-generated cash flows. To illustrate the importance of the distinction between “externally” and “internally” financed investment, suppose that dividends in any form were very highly taxed and capital gains were tax free. In this event, it might be desirable to retain internally generated cash flows and invest them rather than pay them as dividends or interest even if the NPV of the investments were significantly negative in the event of these investments being externally-financed. If such investments had a positive (negative) NPV in the event of being externally-financed, they would be called “externally (“internally”) financed” investment.

[2] The failure to recognise differential taxation of interest, dividends and capital gains is implicit in the typical use of the standard form of the CAPM (Sharpe, 1964; Lintner, 1965; Mossin, 1966) for determining the cost of equity.

[3] There are both pros and cons from this approach. The cost of debt comprises the risk free rate and the debt risk premium, and the latter comprises compensation for expected default losses, (systematic) risk associated with default risk and the inferior liquidity of corporate bonds relative to government bonds. Also, default losses arise from both bankruptcy costs and the default option possessed by equity holders. Since this default option is not a cost borne by capital suppliers in aggregate but merely a transfer between equity and debt holders, then the (conventional) approach to bankruptcy costs that is adopted here effectively overstates WACC. However, direct approaches to the issue of bankruptcy costs are also problematic. For example, Almeida and Philippon (2007) treat bankruptcy costs as a cost C that arises upon default. However, some bankruptcy costs are incurred by (highly-levered) firms even if they never default, in the form of customers, employees, etc. who avoid the firm or require compensation through lower prices, higher wages, etc. Furthermore, Almeida and Philippon's estimate of C is that of Andrade and Kaplan (1998), which is based upon a sample of firms experiencing bankruptcy and in which all of the decline in value from the time at which a highly-levered transaction was initiated until resolution of the bankruptcy is ascribed to bankruptcy costs rather than some combination of this and economic shocks. Thus, as noted by Andrade and Kaplan (ibid, p. 1487), their estimates of C are upper bounds.

دریافت فوری ← متن کامل مقاله

ISIArticles
مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات