***The Benefit of Debt: Interest Tax Shields***

Interest expense is looked upon by the tax office as a cost of doing business, so it is tax-deductible. That's why it is subtracted from Net Income (NI) before tax is paid:

However, we know that interest expense is an accountants' attempt to quantify the income payable to debt holders, just as dividends are income to equity holders (note that interest expense is not a cash flow). In a perfect world with no taxes or transaction costs we wouldn't care if we financed our project with debt or equity. But since interest expense is tax-deductible and dividends aren't, debt is tax-advantaged.

***Advantage of Debt versus Equity Funding***

The effect of more debt funding (D as in V=D+E):

↑D, ↑IntExp, ↓Pretax profit, ↓Tax.

The effect of more equity funding (E):

↑E, ↑Dividends, Same Pretax profit, Same Tax.

Debt is tax advantaged over equity because **interest expense** is tax deductible but **dividends** are not. This is the ‘interest tax shield’ benefit of funding your assets with debt.

***Quantifying the Interest Tax Shield***

After substituting the NI equation into FFCF, and then expanding and collecting like terms, the following can be shown:

That last term, , is the tax shield per year. It is the tax saving from paying interest on debt. Note that:

, where D is the value of the firm's debt.

***Calculation Example: Interest Tax Shield***

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| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| Just Jeans Group | |  | Just Jeans Group | | | |
| Income Statement for | |  | Balance Sheet as at 26 July | | | |
| period ending 26 July 2008 | |  |  | 2008 |  | 2007 |
| Net sales | 822 |  | Current A | 92 |  | 105 |
| COGS | 717 |  | Non-current A | 195 |  | 178 |
| Depreciation | 24 |  | Total A | 287 |  | 259 |
| EBIT | 81 |  |  |  |  |  |
| Interest expense | 11 |  | Current L | 208 |  | 72 |
| Taxable income | 70 |  | Non-current L | 22 |  | 134 |
| Taxes | 21 |  | Owners Equity | 57 |  | 53 |
| Net income | 49 |  | Total L and OE | 287 |  | 259 |
|  |  |  |  |  |  |  |

Note: all figures are given in millions of dollars ($m).

**Question**: Find the yearly interest tax shield assuming a corporate tax rate () of 30%.

**Answer**: The easy way is to use the formula:

Interest tax shield per year

So $3.3m is the annual tax saving from paying interest on debt. If the firm didn't have this debt then it would have a lower FFCF and the value of the firm's assets is less.

**Question**: Find the present value of the interest tax shields (). Assume that the interest tax shield will be constant forever and that the discount rate of the interest tax shield () is 10%.

**Answer**: Since the tax shield cash flow will be the same forever, we can value it using the perpetuity formula :

This is the increase in the value of the firm from having debt, incurring interest expense and therefore paying less tax.