

NOTIONAL INTEREST DEDUCTION AND FINANCIAL POLICY¹

May 2007

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The system of the notional interest deduction has important implications for companies' investment policy. Here, we are studying the economic impact that the application of notional interest can have on the required rate of return and the value of equity.

1. The capital cost

Very generally speaking, there must be a positive relationship between the risk that shareholders take in a company, and the return that they can demand from their shares (the capital cost). In its most common version, this relationship is considered to be linear: the capital cost changes in relation to the risk, on condition that this is measured in relation to the risk of an extremely diversified portfolio, such as a stock market index. This concept of risk with regards to a well-diversified portfolio is called the systematic risk, which is reflected by a coefficient referred to as *bêta*.

In this view, the setting of the return that is required on the equity of a company is based on the total of two elements, specifically the price of time (which usually corresponds to the interest rate on risk-free assets) and the risk premium, measured by the product of the company's systematic risk and the market price of the risk. If, for example, we take an interest rate of 5% - in Belgium we may assume that this corresponds more or less to the interest rate for 10-year linear bonds for this type of calculation - and a market price for the risk of 7%, then a company with a beta of 1.5 needs to pay its shareholders a return of $5\% + 1.5 \times 7\% = 15.5\%$.

The law on notional interest deduction responds to this fragmentation of the forecast return of a risk-bearing asset. Fiscally, the return on equity is divided into two elements. A first element is treated as equivalent to a "notional" interest charge that leads to a tax

¹ This article is an interpretation and simplification of the article by B. Colmant and G. Hübner (2005), "L'impact économique des intérêts notionnels - Première partie: Références à la théorie financière classique." (The economic impact of notional interest - Part One: References to the classic financial theory), *Revue Bancaire et Financière*, December 2005, no. 8, Page. 499-507.

deduction of the amount of equity. The remainder of return on equity forms the shareholder's added value, and is logically subject to corporation tax. In practice, this means that every company enjoys a reduction in the cost of capital that is equal to the risk-free interest rate multiplied by the marginal tax rate. If this rate is 30%, for example, the required percentage return on equity is therefore $30\% \times 5\% = 1.5\%$.

What does this change in practice for companies? Of course, the notional interest system allows them to save tax, and therefore has a direct impact on their profitability. But the analysis of their capital cost reveals something else: by lowering the rate of return that is required by shareholders on the company's equity, the notional interest also improves its investment prospects. In the previous example, a project of which the management expects an internal rate of return of 15% would not be able to be carried out: the shareholders would demand a higher rate of return (15.5%) for a project with the same risk. Once the tax saving through the notional interest is taken into account, the capital cost becomes only 14%, and therefore an investment in the same project would become desirable. This system would ensure that entrepreneurs were more willing to take on projects that initially appear rather too adventurous. It is a tax incentive to invest.

But how do we calculate the reduction in the capital cost outlined hereabove? It is equal to the product of two elements: on the one hand, the marginal tax rate on the profit, and on the other hand, the ratio between the book value and the market value of the company's equity.

The first element is rather easy to understand: the more corporation tax you pay, the greater the tax saving. On the other hand, this measure does not help a company that only makes losses.

The second element is rather less obvious. It relates to the fact that the notional interest is calculated on the book equity, while the capital cost applies to the economic value of the equity; i.e. the value as estimated by the market (now or in future). So young, fast-growing companies (referred to as "gazelles") are universally known for being proponents of a considerable discrepancy between the net balance sheet assets (which often show deferred losses and nonproductive assets) and the economic equity, which is equal to the current value of future revenue streams. As a result, a large number of SMEs should bear in mind that the book value/market value ratio of their equity is very weak. This characteristic has an unfavourable impact on the reduction of the capital cost due to the notional interest. Let us look at two companies with the same capital cost. The first, a fast-growing company, has a ratio of book value/market value of 0.5. The second, a company with very stable income and which invests little (a "return" company) has a ratio of 0.8. If we apply a marginal tax rate of 34%, the reduction in the capital cost is $0.5 \times 34\% \times 5\% = 0.85\%$ for the growth company, while the return company makes a saving of $0.8 \times 34\% \times 5\% = 1.36\%$. So this seems to be a bias in the impact of the tax measure which works against growth companies which, of course, is not the intended effect of the system.

The notional interest measure can clearly not use a market value concept in order to correct the above-mentioned perverse effect. However, the legislator, having a legal definition of an SME, indirectly took this problem into account by increasing the interest rate used for the notional interest deduction by 5%. Implicitly, this acknowledges the fact that the fabric of small and medium-sized enterprises is the most important growth factor in the market economy. If, again using the previous example, we take into account the fact that the growth firm is an SME, unlike the "return" company, we will see a correction for the first time, with an ultimate reduction in the capital cost equal to $0.5 \times 34\% \times 5.5\% = 0.935\%$. In this case, the correction is not complete, but it is heading in the right direction.

Knowing which type of company you are is an important element in the actual impact of the measure in order to estimate your capital cost. There is a simple way of estimating this ratio: all you have to do is look at the average ratio between the price and the book value of the shares of stock market listed companies from the same sector. Even if the estimate is not precise, at least it has the merit of enabling the manager to identify the type of company (growth or return) into which the financial markets will classify the activities in that sector.

The following tables give a numeric summary of the reduction in the capital cost associated with the different levels of interest rate and the ratio book value/market value. The table 1 shows the reduction in the capital cost for large companies, while the table 2 shows the reduction in the cost for SMEs.

Table 1: reduction in the cost of equity for large companies

Book value/ Market value	Rates of Linear Bonds				
	4%	4,50%	5%	5,50%	6%
1	-1,36%	-1,53%	-1,70%	-1,87%	-2,04%
0,9	-1,22%	-1,38%	-1,53%	-1,68%	-1,84%
0,8	-1,09%	-1,22%	-1,36%	-1,50%	-1,63%
0,7	-0,95%	-1,07%	-1,19%	-1,31%	-1,43%
0,6	-0,82%	-0,92%	-1,02%	-1,12%	-1,22%
0,5	-0,68%	-0,77%	-0,85%	-0,94%	-1,02%
0,4	-0,54%	-0,61%	-0,68%	-0,75%	-0,82%
0,3	-0,41%	-0,46%	-0,51%	-0,56%	-0,61%

Table 2: reduction in the cost of equity for SMEs

Book value/ Market value	Rates of Linear Bonds				
	4%	4,50%	5%	5,50%	6%
1	-1,53%	-1,70%	-1,87%	-2,04%	-2,21%
0,9	-1,38%	-1,53%	-1,68%	-1,84%	-1,99%
0,8	-1,22%	-1,36%	-1,50%	-1,63%	-1,77%
0,7	-1,07%	-1,19%	-1,31%	-1,43%	-1,55%
0,6	-0,92%	-1,02%	-1,12%	-1,22%	-1,33%
0,5	-0,77%	-0,85%	-0,94%	-1,02%	-1,11%
0,4	-0,61%	-0,68%	-0,75%	-0,82%	-0,88%
0,3	-0,46%	-0,51%	-0,56%	-0,61%	-0,66%

2. Market value

It may appear difficult to quantify the impact of the notional interest system on the economic equity value: the tax saving has an impact on the future financial flows developed by every company that aims to make a profit, but the notional interest has also an impact on the capital cost, as explained hereabove. If we start out from the principle that the economic value of a company is equal to the sum of the future financial flows updated to reflect the capital cost, we must be able to prevent double counting of the tax benefit when applying this principle. Fortunately, it is possible to isolate the specific effect of the notional interest by using a familiar technique in the field of companies' valuation. All you have to do is separate the economic value estimate of the notional interest from that of the rest of the company.

The annual financial flow that is specifically linked to the notional interest is thus calculated as the product of three factors: the amount of equity at the beginning of the financial year, multiplied by the marginal tax rate, and again multiplied by the percentage of the Linear Bond (plus 0.5 per cent for SMEs). The applicable updating percentage is equal to the equity cost excluding the notional interest (in our previous examples this would be 15.5%).

Let us take a company with an initial book value of its equity of € 600,000, which forecasts a constant profit growth - and an equity growth - of 5% per year, and its capital cost is 15.5%. If the forecast interest rate is 5%, the corporation tax rate is 34% and the company benefits from the 0.5% increase for SMEs, then the economic value of the notional interest calculated using a formula with increasing values and an infinite duration is the following: you just have to divide the notional interest first flow by the difference between the equity cost and the growth percentage: $(€ 600,000 \times 34\% \times 5.5\%) / (15.5\% - 5\%) = € 106,857$, or 17.8% of the company's value. If the growth percentage was zero, this value would be € 72,387, or 12% of the invested capital amount.

The following table shows the economic value growth of the equity for various values related to the difference between the capital cost and the growth percentage of the equity.

We took a percentage of 5% as a reference for the Linear Bonds, and took into account the 0.5% increase for SMEs.

Table 3: Increase percentage in the equity value

Book value/ Market value	Capital cost - growth percentage				
	8%	10%	12%	14%	16%
1	23,38%	18,70%	15,58%	13,36%	11,69%
0,9	21,04%	16,83%	14,03%	12,02%	10,52%
0,8	18,70%	14,96%	12,47%	10,69%	9,35%
0,7	16,36%	13,09%	10,91%	9,35%	8,18%
0,6	14,03%	11,22%	9,35%	8,01%	7,01%
0,5	11,69%	9,35%	7,79%	6,68%	5,84%
0,4	9,35%	7,48%	6,23%	5,34%	4,68%
0,3	7,01%	5,61%	4,68%	4,01%	3,51%