

Lesson Learned by the New Italian Law on Limited Tax Shield on Debt: Much Ado about Nothing

Alberto Lanzavecchia* & Giulio Tagliavini**

Corporate finance management rules are written under the assumption that financing costs are fully deductible from taxable income. If this assumption is relaxed, such rules need to be revised. We review traditional management tools and propose a new set of guidelines for financial management. The tax reform introduced in Italy, which creates a partial tax deduction for financing costs, offers a case study to measure the impact of such rules on a firm's profitability. The general wisdom among academics and practitioners was of a further pressure on economic performance of firms due to a higher tax burden. Is this concern effective? Do Italian firms pay more taxes in the following years?

We checked the effect of the new rules on a sample of 2,025 large Italian firms. We did not find a deep impact. Effects are limited to one sector, characterized by operating profitability on sample mean and financial leverage below sample mean. Policy makers are now advised to fine-tune this regulation or to abandon it.

I. INTRODUCTION

Corporate finance management rules are written under the assumption that financing costs are fully deductible from taxable income (e.g., generate a 'tax shield'). However, if this assumption is relaxed, such rules need to be revised. The recent tax reform introduced in Italy, which creates a partial tax deduction for financing costs, offers a case study to measure the impact of such rules on a firm's profitability.

The general wisdom among academics and practitioners was of a further pressure on the economic performance of firms due to a higher tax burden. Is this concern effective? Do Italian firms pay more taxes in the following years?

We faced the theoretical and the empirical issues by revising the existing well-known accounting ratios and cash flow statement analysis by investigating accounting data from a large sample of Italian firms – the 'Mediobanca 2025 cumulated financial statement of Italian companies' (year 2009).

This article is structured as follows: section 2 presents the current Italian taxation system, which affects corporate financial leverage, in particular, by limiting the tax deduction of financial interests from gross operating income (GOI); section 3 presents revised financial analysis guidelines based on accounting ratios, cash flows, and corporate

values; section 4 presents and analyses the impact, if any, of the new law, which limits interest deductibility in the entire sample group and within subgroups and industry sectors; section 5 concludes.

2. CORPORATE CAPITAL STRUCTURE AND ITALIAN TAX RULES

Since the seminal work of Modigliani and Miller,¹ it is widely known and accepted that there is a rational link between financial structure and corporate market value. The optimal capital structure trade-offs present value of tax benefits and expected insolvency costs² to maximize a firm's equity value. Actually, the optimal capital structure depends on other factors, including the regulatory framework for banking activities, uncertainty about the company's expected operating income, and corporate governance.³

Tax rules always influence company decisions about investments, business locations and financing. Such decisions are based on the general assumption that financing costs are fully deductible from taxable income: for every dollar value of financial costs deducted from gross income, the firm gains a tax shield on the marginal corporate tax rate.

Notes

* Corresponding author: Department of Economics and Management, University of Padova, Via del Santo 33, I-35123 Padova PD, Italy. Tel.: +39 049 827 4060; fax: +39 178 2208411. Doctor of Philosophy, Master of Science, Assistant Professor at the School of Economics and Management, University of Padova (Italy), registered auditor. The author can be reached at <alberto.lanzavecchia@unipd.it>.

** Full Professor at the School of Economics, University of Parma (Italy), registered auditor and tax advisor. The author can be reached at <giulio.tagliavini@unipr.it>.

¹ F. Modigliani & M.H. Miller, 'Corporate Income Taxes and the Cost of Capital: A Correction', *American Economic Review* 53, no. 3 (1963): 433–443.

² T.E. Copeland & J.F. Weston (eds), *Financial Theory and Corporate Policy* (Boston: Addison-Wesley Publishing Company, 1988).

³ M.C. Jensen & W.H. Meckling, 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure', *Journal of Financial Economics* 3, no. 4 (1976): 305–360; M. Harris & A. Raviv, 'The Theory of Capital Structure', *The Journal of Finance* 46, no. 1 (1991): 297–355.

In presence of high-leveraged firms, tax authorities should wonder if financial decisions were pulled by business determinants or were pushed by tax avoidance aims.

Rajan and Zingales⁴ found evidence that Italian companies were the most leveraged among G-7 countries, and the main determinant was the relative tax advantage of financial debt.

Not surprisingly, the rationale underlying the set of fiscal laws that Italian government introduced since 1995 was aimed at contrasting tax avoidance through financial management.

2.1. The Italian Laws against Financial Leverage

Act No. 549/1995: the aim of this law is to prevent companies from raising capital by issuing debt that pays 'above market interest rates'⁵ to their shareholders rather than by increasing equity capital. Since personal tax rate on financial income is lower than corporate tax rate on profit (e.g., 12.50% versus 36% at that time – 27.5% as from 2008), shareholders gain a net tax arbitrage by underwriting bonds instead of new shares. To prevent such a tax avoidance scheme, this law establishes that interest on bonds, whose yield is above a market-defined ceiling, cannot be deducted from taxable income.

Act No. 425/1996: it is addressed to companies' practice of securing bank loans using personal cash or securities (other than shares) set as a collateral, outside the firm balance sheet. Such transactions are still permitted, but this law reduced the tax benefits by increasing (from 12.50% to 32.50%) the tax burden on personal income on financial instruments if set as a collateral on bank loans.

Act. No. 446/1997: it introduces a regional tax (the Imposta Regionale sulle Attività Produttive (IRAP)) levied on the 'value added net of depreciation' derived by a resident company. The 'value added net of depreciation' excludes labour costs, extraordinary items, and financial items. The ordinary tax rate is 3.9% (as from 2008), and it is not deductible from gross profit.

Act No. 244/2007: this is the fundamental act that introduces the partial tax deductibility of interest (and other financing charges). Under this rule, interests are fully deductible up to an amount equal to the interest income received in the same tax period. Any excess over that amount is deductible to the extent of 30% of GOI, roughly equal to earnings before interest, taxes, depreciation, and amortization (EBITDA) gross of leasing expenses. Financing costs exceeding 30% of GOI may be carried forward for deduction in subsequent tax periods, to the extent that the net interest expenses (i.e., those exceeding interest income) accrued in such tax periods are less than 30% of each period's GOI. For tax periods beginning on or after 1 January 2010, the portion of GOI not used up in the deduction of interest expenses and financial charges pertaining to a period may be added to the GOI of subsequent tax periods.

In the following sections, our main concern is on the effects on financial management generated by any rule that limits the deductibility of financial expenses from taxable income, such as the one Italy experiences since 2008.

3. IMPLICATIONS FOR FINANCIAL ANALYSIS

Whenever a country's tax law includes partial deductibility from the gross profits of monetary costs⁶ and, more specifically, of interest on debt,⁷ the traditional rules for financial analysis need to be adjusted. Indeed, the case of interest expenses partially deductible from corporate profit is a mezzanine situation between full taxation⁸ and no taxation.⁹

As such, this section examines the adjustments to the traditional financial analysis based on financial ratios, cash flows, and corporate market value.

3.1. Effects on Financial Ratios

Return on equity (ROE), along with return on investment (ROI), is one of most widely used general measures of corporate financial performance.¹⁰ Since ROE represents the

Notes

⁴ R.G. Rajan & L. Zingales, 'What Do We Know about Capital Structure? Some Evidence from International Data', *The Journal of Finance* 50, no. 5 (1995): 1421–1460.

⁵ The limits are twice the European Central Bank (ECB) official rate for bonds and other securities traded on regulated markets in EU countries or placed through public offerings; the ECB official rate increased by two-thirds for bonds and other securities that are different from those mentioned previously.

⁶ Tax adjustments to gross profit is found in the tax rules in effect in Albania, Bangladesh, Bulgaria, Chile, Croatia, Cyprus, the Czech Republic, Egypt, Hong Kong, Iceland, India, Israel, Italy, Malta, Montenegro, Norway, Peru, Poland, Russia, Saudi Arabia, Serbia, Singapore, and Thailand. See Klynveld Peat Marwick Goerdeler International (hereinafter 'KPMG International'). *KPMG's Corporate and Indirect Tax Rate Survey*. Suisse: KPMG International, 2008.

⁷ In addition to Italy, Albania also has rules limiting the deductibility of interest expenses from income. By contrast, Russia and India have tax laws that allow for better tax rates on interest income. See KPMG International, 2008.

⁸ Modigliani & Miller, 1963.

⁹ F. Modigliani & M. H. Miller, 'The Cost of Capital, Corporation Finance and the Theory of Investment', *The American Economic Review* 48, no. 3 (1958): 261–297.

¹⁰ A. Rappaport, *Creating Shareholder Value* (New York: The Free Press, 1986), 31.

ultimate result of a structured financial ratio analysis,¹¹ this contributes to its popularity among analysts, financial managers, and shareholders,¹² even if it hides some serious flaws.¹³

ROE can be broken up into the following decomposition:

$$\text{ROE} = [\text{ROI} + (\text{ROI} - I) \times D/E] \times (1 - k) \times (1 - t) = \frac{\text{earnings}}{\text{equity}}, \quad (1)$$

where ROI = return on invested capital (defined as the sum of $D + E$)

D = net interest bearing debt

E = book value of equity

I = net interests

k = $-(\text{earnings before tax})/(\text{earnings before tax} - \text{extraordinary items})$

t = $-\text{taxes}/\text{earnings before tax}$.

The great explanatory power of (1) comes from the fact it separates the contributions of three management areas: operating activities (e.g., ROI), financing activities (the spread ' $\text{ROI} - I$ ' and the leverage effect), and extraordinary ($1 - k$) and tax activities ($1 - t$).

All corporate finance manuals¹⁴ treat the tax variable residually as an external factor not managed. The impact of taxes is merely an algebraic step that adjusts the gross results of the three management areas.

Such an approach is sound if the company's costs are fully deductible from income or there are no revenues that enjoy favourable taxation (e.g., interest income, dividends, and capital gains).

If we relax this assumption, analysis based on balance sheet ratios needs to be adjusted to account for extra tax payments compared to expected marginal tax rate. As long as taxes do influence corporate financial performance, a manager who is in charge of tax planning (both for operating and financing activities) should be accountable.

As such, (1) should be adjusted in the following new formulation:

$$\text{ROE} = [\text{ROI} + (\text{ROI} - I) \times D/E] \times (1 - k) \times [(1 - T) * \Lambda] = \frac{\text{earnings}}{\text{equity}}, \quad (2)$$

where, in addition to the above-mentioned symbols:

T = marginal tax rate burden,

$\Lambda = (1 - t)/(1 - T)$. (3)

Since $(1 - T)$ is calculated on the basis of perfect equivalence between book and taxable income while $(1 - t)$ expresses the effective tax burden, the coefficient Λ (*lambda*) measures the degree of alignment between accounting and taxable income. In other terms, it measures the impact of the fiscal inefficiency of managerial decisions taken when determining taxes on earnings.

The manager in charge of corporate tax planning has a clear target now: increase $[(1 - T) * \Lambda]$ by acting on the two components – the local tax system and the fiscal inefficiency of his/her decisions.

Other financial ratios derived from decomposing ROE are not influenced by our proposed solution: since the operating management is not in charge of the fiscal impact of its decisions, its performance measurement is in no way influenced by the company's fiscal efficiency.

3.2. Effects on Cash Flow Statement

Entities need cash to conduct their operations, to pay obligations, and to provide returns to investors.¹⁵ The provision of transparent and useful information on market participants is essential for an orderly and efficient market.¹⁶

Under International Accounting Standards (IAS) 7, all entities shall prepare a statement of cash flows in accordance with the requirements of the Standard. IAS 7 sets out that the statement of cash flows must show the financial flow for the period in question, classifying them into one of three areas:

- operating activities: the main revenue-producing activities of the entity that are not investing or financing activities;

Notes

¹¹ C. Firer et al. (eds), *Fundamentals of Corporate Finance* (New York: McGraw-Hill, 2004), 68; J.D. Stowe et al. (eds), 'Analysis of Equity Investments: Valuation' (Baltimore: Association for Investment Management and Research, 2002), 85; C. Correia et al. (eds), *Financial Management* (Cape Town: Juta, 2003), 5–19.

¹² A. Monteiro, 'A Quick Guide to Financial Ratios', *The Citizen, Moneyweb Business*, no. 6 (2006).

¹³ C. Firer, 'Driving Financial Performance through the Du Pont Identity: A Strategic Use of Financial Analysis and Planning', *Financial Practice & Education* 9, no. 1 (1999): 34–45; A. Parés, 'The Return on Equity Decomposition (ROED) and Its Importance to Financial Statement Analysis', *Journal of Business Finance & Accounting* 7, no. 3 (1980): 367; Rappaport, 1986, 43; G.M. Boyd, 'Some Suggestions for a "New and Improved" Dupont Model', *Journal of Financial Education*, no. 15 (1989): 29–32; R.A. Brealey & S.C. Myers (eds), *Principles of Corporate Finance* (New York: McGraw-Hill, 2003).

¹⁴ J.P. Berk & P. DeMarzo (eds), *Corporate Finance* (Boston: Pearson Education, 2008); D.K. Eiteman, A.I. Stonehill, & M.H. Moffett (eds), *Multinational Business Finance* (Boston: Pearson Education, 2007); S. Lumby & C. Jones (eds), *Corporate Finance: Theory and Practice* (London: International Thomson Business Press, 2003); S.A. Ross, R.W. Westerfield, & J.E. Jaffe (eds), *Corporate Finance*, 3rd edn (Irwin: Homewood, 1993); J.C. Van Horne & J.M. Wachowicz (eds), *Fundamentals of Financial Management* (Englewood Cliffs: Prentice Hall, 1992).

¹⁵ International Accounting Standard Foundation, *International Accounting Standards* (London: International Accounting Standard Foundation, 2008).

¹⁶ E.F. Fama, 'Efficient Capital Markets: A Review of Theory and Empirical Work', *The Journal of Finance* 25, no. 2 (1970): 383–417. We are aware, however, that financial officers view earnings, not cash flows, as the most important metric reported to outsiders.

- investing activities: the acquisition and disposal of long-term assets and other investments that are not considered to be cash equivalents;
- financing activities: activities that alter the equity capital and borrowing structure of the entity.

Nonetheless, individual transactions can include cash flows that are classified differently. For example, when the repayment of a loan includes both interest and capital, then the interest could fall under operating activities and the capital, under financing activities. Alternatively, the entire cash flow could be placed under financing activities. It is unclear whether the payment of interest falls under operating or financing activities.

Tax payments face a similar problem. IAS 7 established that the payment or reimbursement of income tax be placed under operating activities, unless it can specially be included under financing or investment activities. Moreover, once taxable income has been calculated from the sum of the interest payable on financing activities, it follows that a part of the operating taxes falls under financing activities. If this is the case, then we have to consider whether it is necessary to divide cash flows for taxes according to the various areas that resulted in such taxes.

The operating cash flow of two companies that have identical economic margins and return on capital, but different financial structures, must be identical (hence, the value of the business is equal). If the cash flow from operations includes all income taxes, then such equivalence would be breached: a higher leveraged company would show greater financing costs that could be deducted from taxable income. As a result, it would have a lower tax burden, thus increasing the cash flow from operations artificially.

This is why operating cash flow is calculated net of taxes linked to operating activities but gross of any impact from financing activities (e.g., it is an ‘unlevered’ after-tax cash flow). Hence, it is incorrect to calculate unlevered after-tax cash flow net of all operating taxes on the company or, even worse, net of interest expenses. By contrast, it is necessary to divide the taxes into the respective areas from which they originate.

Table 1 provides a numerical example. The lower section of the table shows three possible ways of displaying a cash flow statement. Column C presents the one we prefer. All of them present the same figures as regards:

- profit,
- changes in the net financial position,
- cash flow from/to shareholders.

In column A, ‘gross cash flow from operations’ is the sum of EBITDA and operating taxes. Financing costs are

placed under financing activities without subtracting the tax shield that they generate. Using this approach, the ‘cash flow from operations’ is 196. Net of capital expenditures (hereinafter ‘capex’), unlevered after-tax cash flow, amounts to 296.

In column B, ‘gross cash flow from operations’ is the sum of the net profit and non-monetary costs (amortization and provisions). Calculating cash flow for operations in this manner is, in our opinion, wrong for the following reasons: including both the financing costs (94) and all taxes (54) does not split marginal taxes levied on financial and extraordinary items. Moreover, the financing costs are no longer included under the financing activities in any way. This approach results in a lower ‘cash flow from operations’ (112) and a lower ‘unlevered after-tax cash flow’ (202).

In column C, ‘gross cash flow from operations’ is the sum of EBITDA and the marginal taxes on EBIT, calculated as follows:

$$\begin{aligned}\text{Corporate taxes} &= \text{marginal corporate tax rate} \times \text{EBIT} \\ &= 27.5\% \times 190.0 \\ &= 52.25.\end{aligned}$$

The investment activities correctly show an inflow of 100, but they are also the net of the marginal taxes generated by the capital gain (effect of the decision to disinvest) of 10 in the profit and loss account. The marginal tax implication of this activity can easily be calculated:

$$\begin{aligned}\text{Corporate taxes} &= \text{corporate tax rate} \\ &\quad \times \text{extraordinary items} \\ &= 27.5\% \times 10 \\ &= 2.75.\end{aligned}$$

Thus, cash flow from operations and unlevered after-tax cash flow equal, respectively, to 197.75 and 295.00. ‘Cash flow from operations’ is not influenced by financial decisions in any way¹⁷ (debt level, cost of debt, various types of financing, and so on), and operating activities are valued as if they were a company without any debts and that pays its own taxes.

Finally, ‘unlevered after-tax cash flow’ is split among the residual claimants of corporate value: financial creditors, the government, and shareholders.

In column C, the cash flows from and to capital providers clearly highlight the marginal tax shield on financing costs:

$$\begin{aligned}\text{Tax shield on interests} &= \text{corporate tax rate} \\ &\quad \times \text{net financial items} \\ &= 27.5\% \times 94 \\ &= 25.90\end{aligned}$$

Note

¹⁷ On closer examination, using leasing fees rather than renting or amortization costs implicitly introduces financing costs into the operating activities. However, this is not an aspect that falls under the purview of this paper.

Table 1. Cash Flow Statements (EUR 000)

	Year n		
Net sales	1,150.00	1,150.00	1,150.00
EBITDA	300.00	300.00	300.00
Earnings before interest and taxes (EBIT)	190.00	190.00	190.00
Net financial items	-94.0	-94.0	-94.0
Extraordinary items	10.0	10.0	10.0
Earnings before taxes	106.0	106.0	106.0
Taxes	-54.0	-54.0	-54.0
Earnings after taxes	52.00	52.00	52.00
	A	B	C
Earnings after taxes		52.00	
EBITDA	300.00		300.00
Amortization and provisions		110.00	
Operating taxes	-54.00		-52.25
Gross cash flow from operations	246.00	162.00	247.75
+/- Working capital changes	-50.00	-50.00	-50.00
Cash flow from operations	196.00	112.00	197.75
Capex	100.00	90.00	100.00
Marginal taxes on capex			-2.75
Unlevered after-tax cash flow	296.00	202.00	295.00
Net financial items	-94.00		-94.00
Marginal tax impact on net financial items			25.85
Fiscal inefficiency for financial items			-1.10
Changes in net debt	-197.00	-197.00	-197.00
Dividend	-5.00	-5.00	-5.00
Fiscal inefficiency for operating activities			-23.75

and the higher taxes due to the partial deductibility of interest from income:

$$\begin{aligned}
 \text{Maximum deductible interest} &\approx \text{maximum share} \\
 &\quad \text{allowed} \times \text{EBITDA} \\
 &= 30\% \times 300 \\
 &= 90.0
 \end{aligned}$$

$$\begin{aligned}
 \text{Excess that cannot be deducted} &= \text{net interest} \\
 &\quad - \text{maximum} \\
 &\quad \text{deductible interest} \\
 &= 94 - 90 \\
 &= 4.0
 \end{aligned}$$

$$\begin{aligned}
 \text{Reduced tax shield for interest} &= \text{excess that cannot} \\
 &\quad \text{be deducted} \\
 &\quad \times \text{marginal tax rate} \\
 &= 4 \times 27.5\% \\
 &= 1.1.
 \end{aligned}$$

Logically, by only stripping the fiscal inefficiency from the financing activities, the item 'fiscal inefficiency in operating activities' refers, in a residual and undifferentiated

manner, to the increased taxes (compared to the theoretical marginal ones) generated by the other two areas (operating and investment activities):

$$\begin{aligned}
 \text{Fiscal inefficiency} \\
 \text{for operating activities} &= \text{taxes} - \text{operating taxes} \\
 &\quad - \text{marginal taxes on capex} \\
 &\quad + \text{tax shield for interest} \\
 &\quad - \text{reduced tax shield for} \\
 &\quad \text{interest} \\
 &= 54.0 - 52.25 - 2.75 \\
 &\quad + 25.90 - 1.1 \\
 &= 23.75.
 \end{aligned}$$

The 'reduced tax shield for interest' and the 'fiscal inefficiency in operating activities' show, in monetary terms, the misalignment between theoretical and effective taxes. As such, they provide objective parameters that a corporate tax planner seek to minimize.

The logic used to display information in column B is conceptually wrong and harmful. In column A, it is misleading but easy to understand. Column C seems to be the best, but it might be too sophisticated for practitioners.

3.3. Effects on Corporate Valuation

The two main approaches to analysing company value are economic value added (EVA)¹⁸ and discounted cash flow.¹⁹ Both methods provide the same result²⁰ since accounting, finance, and financial mathematics do not create or destroy value but describe it in their own language.

EVA[®] is basically the difference between the net operating profit after tax (NOPAT) and the weighted average cost of invested capital (WACC):

$$\text{EVA} = \text{NOPAT} - [\text{WACC} \times (D + E)]. \quad (4)$$

If book and market values of capital are equal, then any positive value on EVA[®] yields an excess profit on investor's expectations.²¹

This method is based on the clear-cut separation between operating activities and financing activities. Since NOPAT is charged by operating taxes only, it is not influenced by financing activities in any way. Therefore, national tax laws that allow interest to be partially deducted from gross income (or tax exemptions on financial income) have no impact on NOPAT.²² Nevertheless, excess profit would be influenced due to the increased effective taxation of financing interest.

In order to isolate the effect on the financing costs caused by partial deductibility from corporate taxes, we propose two alternative adjustments²³ on accounting data:

- (1) adjusting capital employed by adding equity equivalent reserves to capital,
- (2) adjusting after-tax WACC.

The assumption underlying the adjustment to employed capital is that increased taxation due to local tax laws can be seen as reducing the profit (corporate value) of equity and bond investors. As such, the increase in taxation becomes an 'equity equivalent capital' withdrawn by the government. As any capital employed in a firm, it costs the unadjusted WACC:

$$\text{equity equivalent capital} = \text{non-deductible interest} \\ \times \text{marginal tax rate.}$$

The rationale underlying the adjustment to WACC is that the partial deductibility of the interest yields to an increased after-tax cost of debt (the tax shield is limited). The capital employed is unadjusted, while the adjusted WACC increases as the percentage of the financing costs that cannot be deducted increases:

$$\text{WACC adjusted} = \text{WACC}^* = \sum_{i=1}^n Wk_i \times k_i \times (1-t) + \sum_{j=1}^m Wk_j \times k_j, \quad (5)$$

where:

- Wk_i = the i-th capital share of the total financing capital,
- k_i = gross cost of the i-th type of entirely deductible acquired capital,
- t = marginal tax rate on the interest expense,
- Wk_j = the j-th capital share of the total financing capital,
- k_j = gross cost of the j-th type of capital acquired that is not deductible.

Obviously, the company performance is equal in both adjustments. The role of the chief financial officer is to manage the capital charge payable on operating performance. The EVA method, as a value-based management tool, provides an objective parameter for setting company goals.²⁴

In evaluating corporate value based on discounted cash flow analysis, firm value is given by the net present value of forecast unlevered after-tax cash flow.

Partially, deductible interest can be treated in two different ways:

- (1) by adjusting forecast unlevered after-tax cash flow,
- (2) by adjusting WACC.

The first method calculates WACC as a discount rate, assuming interest is fully deductible, and subtracts the present value of the lack of the tax shield (LTS) from the present value of cash flow:

$$\text{EV} = \sum_{t=1}^n \text{FCF}_t \times (1 + \text{WACC})^{-t} - \sum_{k=1}^m \text{LTS}_k \times (1 + \text{WACC})^{-k}. \quad (6)$$

Notes

¹⁸ B.G. Stewart, *The Quest for Value* (New York: HarperBusiness, 1991).

¹⁹ J. Hirshleifer, 'On the Theory of Optimal Investment Decision', *Journal of Political Economy* 66, no. 4 (1958): 329–352.

²⁰ R.E. Shrieves & J.M. Wachowicz, 'Free Cash Flow (FCF), Economic Value Added (EVA), and Net Present Value (NPV): A Reconciliation of Variations of Discounted-Cash-Flow (DCF) Valuation', *Engineering Economist* 46, no. 1 (2001): 33–52.

²¹ S.D. Young & S.F. O'Byrne (eds), *EVA and Value Based Management* (New York: McGraw-Hill, 2001).

²² NOPAT is only influenced by tax laws that allow partial deductibility (or non-taxation) of operating costs and earnings. In such cases, it is best to isolate the marginal tax implication of these rules using an appropriate adjustment to operating taxes. It is the company manager in charge of tax activities that has to improve the company's EVA by minimizing the items 'Adjustments on operating taxes' and 'Operating taxes'. Should the performance of a manager of an EVA centre be measured 'after effective taxes' (and the manager is also responsible for the tax implications of his/her decisions), the item 'Adjustments on operating taxes' would be unbundled from the group level and allocated to each EVA centre.

²³ See P.A. Dierks & A. Patel, 1997, for examples, showing how Stern Stewart adjusts the generally accepted accounting principles to arrive at EVA.

²⁴ J.L. Zimmerman, 'EVA and Divisional Performance Measurement: Capturing Synergies and Other Issues', *Journal of Applied Corporate Finance* 10, no. 2 (1997): 98–109.

The second method of calculation indexes the forecast unlevered after-tax cash flow to $WACC^*$, adjusted to the amount of interest that is not deductible from income (this is the same as adjusting after taxes $WACC$ in the EVA method):

$$EV = \sum_{t=1}^n FCF_t \times (1 + WACC^*)^{-t}, \quad (7)$$

Both methods produce the same result. However, we believe that the first option is preferable since company managers are more used to planning results and fixing goals in economic terms (earnings and cash flow) rather than in terms of the future cost of capital.²⁵

If the interest expense is partially (or totally) non-deductible, then the value of the company is divided differently among the residual claimants, namely the government, debt and equity holders. In this case, the financial analyst and the company's management must correctly allocate the amount to be paid to the state as a consequence of marginal decisions.

ROI, operating cash flow, NOPAT, and unlevered company value – key parameters in their respective areas and analysis methods – provide the same conclusions. All of these are methods of measurement that aid value-based management in assigning the responsibility for ineffective tax decisions to the appropriate directors.

Company finance has never created value, but, rather, it allocates value among government and capital investors. If financial decisions cause a different tax treatment, then the financial management shifts company value by directly reducing investor wealth or even destroys corporate value by limiting the reinvestment of (after-tax) cash flow. Here comes a call for performance measures that are able to support correctly value-based management.

4. HOW DEEP IS THE IMPACT ON ITALIAN FIRMS?

Lanzavecchia et al.²⁶ examined, using an analytical model and a scenario approach, the effects of such tax rules on the optimal capital structure and on the financial performance of a firm. They predicted a fast declining ROE, and they

showed a trend slightly sensitive to financial leverage but highly sensitive to operating performance (Figure 1).

The authors concluded that:²⁷

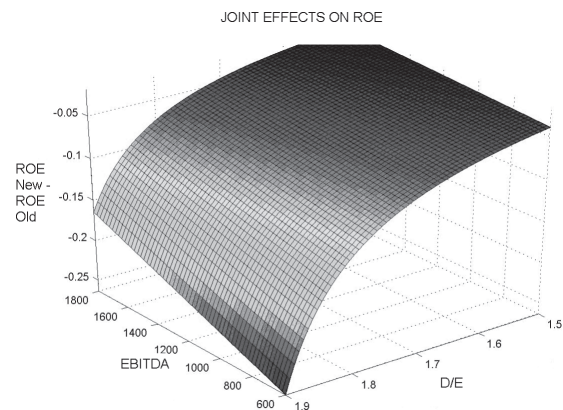
- (1) high profitable firms will be discouraged to leverage their capital structure because this would destroy market value,
- (2) low profitable firms will be deeply penalized even at a low financial leverage, and they could quickly enter in financial distress caused by a lower capacity to cover financing costs.

Following the introduction into the Italian tax system of Act No. 244/2007, the general wisdom among academics and practitioners was of a further pressure on a firm's economic performance due to a higher tax burden.

Was this concern effective? Do Italian firms pay more taxes in the following years?

We checked the effect of the new rules on the Mediobanca sample of 2,025 large- and medium-sized Italian firms.²⁸ The sample covers all Italian large firms and a significant sample of medium-sized ones. On aggregated accounting data, neither the entire sample nor two subgroups based on ownership structure and industries paid more taxes due to interest in excess (e.g., above the 30% of EBITDA).

Figure 1. The Joint Effects of EBITDA and Capital Structure (D/E) on ROE



Source: A. Lanzavecchia et al., 'Financial Management When Interest on Debt Are Not Fully Deductible: The Italian Case Study, The Annals of "Stefan cel Mare" University of Suceava', *Fascicle of the Faculty of Economics and Public Administration*, vol. 10, special number (2010): 283–300.

Notes

²⁵ J.R. Graham, C.R. Harvey, & S. Rajgopal, 'The Economic Implications of Corporate Financial Reporting', *Journal of Accounting and Economics* 40, Issues 1–3 (2005): 3–73, proposes a mathematical model to analytically estimate the marginal tax benefit of financing costs that are deductible from the value of equity.

²⁶ A. Lanzavecchia et al., 'Financial Management When Interest on Debt Are Not Fully Deductible: The Italian Case Study, The Annals of "Stefan cel Mare" University of Suceava', *Fascicle of the Faculty of Economics and Public Administration*, vol. 10, special number (2010): 283–300.

²⁷ *Ibid.*

²⁸ Mediobanca (ed.), *Dati cumulativi di 2025 società italiane* (Milano: Mediobanca, 2010). Out of 2,025 firms, 1,868 are private or public firms while 157 are state-owned ones. From an industry perspective, out of 2,025 firms, 1,790 are manufacturing firms while 235 are active in service and commercial industries.

Table 2. Selected Data and Key Findings (Year 2009, EUR in million)

	All Firms	Ownership Structure		Industry	
		Private or Public Firms	State Owned	Manufacturing	Commercial
Net sales	537.8558	405.9750	131.8808	433.0409	104.8149
EBITDA	60.7601	42.3074	18.4527	36.0163	24.7438
Interest and financing charges	-19.1185	-13.8585	-5.2599	-10.6456	-8.4728
Interest received	21.0913	12.9612	8.1301	16.4484	4.6429
Net financials	1.9728	-8973	2.8701	5.8028	-3.8300
Maximum deductibility (30% of EBITDA)	-18.2280	-12.6922	-5.5358	-10.8049	-7.4231
Excess interest	-	-	-	-	-
Marginal tax effect on excess interest	-	-	-	-	-
Percentage on net sales	-	-	-	-	-

Of course, since the sample is presented as an aggregation of individual financial statements, the result is an average among firms. Hence, is it realistic to expect one or more sectors typically disadvantaged by the new law or, at least, one or more firms that paid more taxes? We checked for industry sectors. Out of twenty-one sectors, two only presented interest in excess above the maximum deductible: the 'food and drink' and the 'textile' ones (Table 3).

Have they been penalized by a too low EBITDA margin or by a too high financial leverage? The answer depends on a mixture of both (Table 4). Actually, sectors below mean profitability with above mean financial leverage are not affected by the partial interest deductibility (e.g., glass). On the contrary, sectors below mean profitability with below mean financial leverage are (e.g., textiles). If the aim was to disincentive high financial leverage, the results are far from the desired outcome. Financial management can handle better what a tax rule cannot: flexibility and diversities within firms and among sectors.

5. CONCLUSIONS

A management approach based on a highly leveraged financial structure is dangerous both for the firm and the economy as a whole. We agree with lawmakers who design rules to encourage companies to increase their equity capital. However, a regulation that limits interest deduction from taxable income is misleading, as it might have a deep impact on not sufficiently profitable firms, even if they are not necessarily inadequately capitalized.

Such a rule impacts almost at random inside corporations since its effects depend on three factors: operating margins, financial leverage, and the cost of debt.

We investigated the effect of the new Italian tax regulation (Law No. 244/2007) that limits net interest deduction from taxable income up to 30% of GOI. In a sample of 2,025 Italian large- and medium-sized firms, we did

Table 4. EBITDA Margin and Financial Leverage among Sectors (Year 2009)

Sector	EBITDA/ Net Sales	D/E
Utilities	38.9%	1.40
Pharmaceuticals and cosmetics	14.0%	0.70
Other manufacturing industries	11.9%	1.19
Oil and energy	11.8%	0.81
Leather	11.2%	0.37
Clothing	10.2%	0.39
Food and drinks	8.6%	0.75
Transportation	8.4%	0.24
Glass	8.3%	1.04
Building	8.2%	0.67
Engineering	8.0%	0.74
Mechanical engineering	7.8%	0.43
Paper and printing	6.6%	0.63
Electronics	6.5%	0.36
Retailers	6.0%	0.75
Wood	4.9%	0.74
Automotive	3.3%	0.65
Textiles	3.1%	0.49
Chemicals	2.2%	0.44
Iron, steel, and metals	1.8%	0.75
Tires and cables	0.7%	0.81
Mean	8.7%	0.68

not find a deep impact. Effects are limited to one sector (e.g., food and drinks) characterized by operating profitability on sample mean and financial leverage below sample mean. Italy, once more, perfectly suits the much-ado-about-nothing scene.

Table 3. Selected Data and Key Findings among Sectors (Year 2009, EUR in million)

	Net sales	EBITDA	Interest and financing charges	Interest received	Net financials	Maximum deductibility ($\approx 30\%$ of EBITDA)	Excess financing charges	Marginal tax effect	Percentage on net sales
Clothing	9.584	981	-354	380	26	-294	-	-	-
Food and Drinks	41.943	3.618	-3.521	476	-3.045	-1.085	-1.959	-539	-128%
Paper and Printing	12.412	818	-358	458	100	-246	-	-	-
Chemicals	24.149	530	-447	423	-25	-159	-	-	-
Automotive	44.124	1.468	-1.424	2.866	1.442	-441	-	-	-
Retailers	28.596	1.709	-356	399	43	-513	-	-	-
Electronics	21.369	1.387	-354	457	103	-416	-	-	-
Oil and Energy	137.794	16.211	-4.221	7.469	3.248	-4.863	-	-	-
Pharmaceuticals and Cosmetics	26.126	3.662	-402	525	123	-1.098	-	-	-
Tires and cables	6.265	42	-119	369	251	-13	-	-	-
Engineering	11.625	927	-314	596	282	-278	-	-	-
Building	17.952	1.481	-553	552	-1	-444	-	-	-
Wood	3.531	174	-55	32	-23	-52	-	-	-
Mechanical Engineering	38.029	2.952	-596	1.015	419	-885	-	-	-
Iron, Steel, and Metals	24.862	450	-616	643	28	-135	-	-	-
Leather	3.885	433	-50	38	-12	-130	-	-	-
Utilities	53.401	20.764	-7.210	3.872	-3.339	-6.229	-	-	-
Textiles	2.526	78	-56	32	-24	-23	-0	-0	-0,00%
Transportation	16.152	1.358	-499	186	-313	-407	-	-	-
Glass	1.965	163	-47	28	-19	-49	-	-	-
Other mfg. Industries	11.567	1.374	-524	268	-256	-412	-	-	-

This is fully coherent to the academic concern that such tax rules ultimately are not aimed to strengthen the corporate financial structure.

Policy makers are now advised to fine-tune this regulation or to abandon it.

In the meantime, financial managers are in charge of a more complex tax planning. To this extent, we reviewed

traditional performance measurement indicators and we proposed new guidelines.

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