AN ASSESMENT OF THE MILLER'S MODEL ON ROMANIAN FISCAL FRAMEWORK

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Miller's contribution to financial theory is beyond any shadow of doubt. Starting from the well-known model elaborated with its partner Franco Modigliani, he consolidated a theoretical framework, which bears its name that partially offsets the original. Taking into consideration personal taxation of shareholders and debt holders, he extended the Modigliani-Miller's model into what is today simply called, the Miller's model. The present paper evaluates the basic element of the Miller model, the Miller's condition, under Romanian fiscal framework and tries to formulate some conclusions regarding the flat tax adoption.

The model of Modigliani and Miller did not take into consideration personal taxes of individual investors, either shareholders or debt holders. Accordingly, the model says that the value of a leveraged firmed is greater than the value of an unleveraged firm due to the tax savings determined by the deductibility of interest:

$$V^L = \frac{EBIT(1-t)}{K_{ec}^U(U)} + D*t_c = V^U + t_c*D$$

EBIT = earnings before interests and taxes;
t_c = corporate income tax rate;
D = debt;
V^L = value of the leveraged firm;
V^U = value of the unleveraged firm;

Based on some restrictive assumptions, the model shed a new light not only on the market value of the firm, but also on the incidence of taxation on business. Economists have begun to take into consideration taxes paid by businesses and investors in order to design the optimal corporate financial policy. Farrar and Selwyn, than Miller approach the incidence of personal taxation on investors streams of revenues in order to evaluate the impact at corporate at personal level. Miller argued that the marginal costs of equity and debt after corporate and personal taxes should be equal in equilibrium, so corporate tax savings related to debt could be offset by the personal tax disadvantage of holding debt instead of equity. This will cause investors to ask higher pretax returns on debt relative to equity, and that, from the company's point of view, will offset the tax advantage of using debt financing.

In these circumstances, the Miller model reconsidered the Modigliani-Miller one, by taking into consideration the personal taxes on shareholders and debt holders.

If the streams of revenues for shareholders were (EBIT-Interest)$(1-t_c)(1-t_s)$ the streams of revenues for debt holders were Interest$(1-t_d)$, the value of the leveraged firm is determined by capitalization of these streams of revenues at specific rates, so:

$$V^L = \frac{EBIT(1-t_c)(1-t_s)}{K_p} - \frac{Interest(1-t_c)(1-t_s)}{K_d} + \frac{Interest(1-t_d)}{K_d}$$

$$V^L = V^U - \frac{\text{Interest}(1-t_c)(1-t_s)}{K_d} + \frac{\text{Interest}(1-t_d)}{K_d}$$

$$V^L = V^U + [1 - \frac{(1-t_c)(1-t_s)}{(1-t_d)}] \times \frac{\text{Interest}(1-t_d)}{K_d}$$

$$V^L = V^U + [1 - \frac{(1-t_c)(1-t_s)}{(1-t_d)}] \times D$$

t_s = tax rate on shareholders income;

t_d = tax rate on debt holders income;

The expression $[1 - \frac{(1-t_c)(1-t_s)}{(1-t_d)}] \times DAT$ represents the advantage for the shareholders as a result of debt financing, or, in other words, the leverage in the presence of personal taxes (the gain from the leverage[171]). It is a real advantage as long as $\frac{(1-t_c)(1-t_s)}{(1-t_d)} < 1$, otherwise it will be a loss for the shareholders. This fundamental condition is known as the Miller condition.

The Miller model represents an extension of the Modigliani-Miller model, in some particular circumstances, both being equivalent ($t_s = t_d = 0$). In conclusion, the increase of the leverage will determine the augmentation of the firm's value if and only if $(1-t_d) > (1-t_c)(1-t_s)$. Otherwise, the tax savings at the firm's level resulted from the deductibility of interest will be offset by the fiscal disadvantage of the shareholders resulted from personal taxation. In fact, as Miller noted "for a wide range of values for t_c, t_s, t_d, the gain from leverage vanishes entirely or even turns negative!"[172]. When $(1-t_d) = (1-t_c)(1-t_s)$ the offset is one-to-one and "the owners of the corporation reap no gain whatever from their use of tax-deductible debt rather than equity capital"[173]. But, Miller went further and makes some assertions valid in a progressive taxation framework: "any situation in which the owners of corporations could increase their wealth by substituting debt for equity (or vice versa) will be incompatible with market equilibrium. Their attempts to these opportunities would lead, *in a world with progressive income taxes*, to changes in the yields on stocks and bonds and in their ownership patterns. These changes, in turn, restore the equilibrium and remove the incentives to issue more debt, even without invoking the bankruptcy costs or lending costs as a deux ex machina"[174].

In these circumstances, we tried to asses the Miller model on Romania's fiscal framework, by taking into consideration the tax rates for individual gains from interest and dividends, all along the period that started in 1990, and to reflect the impact of flat tax implementation at the beginning of 2005.

Our task was facilitated by the similar tax systems used both in Romania and in USA, regarding the taxation of dividends (the so-called classical systems in which the company is subject to corporate income tax, dividends distributed to shareholders being taxed again under personal income tax) and was based on the total deductibility of interest in computing taxable corporate income (an assumption which not was always true, because of the partial deductibility of interest depending on the leveraged ratio of the firm).

In these conditions, a brief history of taxation of dividends and interest in Romania is more than useful.

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171 Merton Miller – "Debt and Taxes", Journal of Finance, No. 2, May 1977, p. 267.
172 ibid.
173 ibid, p. 268.
174 ibid.

The taxation of dividends was introduced in Romania at the beginning of 1992. The tax rate varied considerably along the period as table no. 1 shows:

Table no.1. The tax rate for individual dividend gains

Period	Individual tax rate (%)
01.01.1992 – 31.12.1999	10
01.01.2000 – 31.12.2003	5
01.01.2004 – 31.12.2005	10
01.01.2006 – present	16

Source: Fiscal legislation

One can notice the relative stability of the tax rate, which was at 10% for a period of ten years (1992 – 1999, and 2004 – 2005), interrupted by a period of four years (2000 – 2003), when it dropped to 5%.
As for interest taxation, it came into practice at the beginning of 1998, with a symbolic tax rate of 1%, which gradually reached the actual level of 16%, as table no.2 shows:

Table no. 2. The tax rate for individual interest gains

Period	Individual tax rate (%)
01.01.1998 – 30.04.2005	1
01.05.2005 – 31.12.2005	10
01.01.2006 – present	16

Source: Fiscal legislation

One can notice the very low level of tax rate for individual interest gains, which determine the individual preference for debt buying rather than equity buying, a fact that in the Romania's condition at that time, was not quite desirable.
In order to asses the Miller's model in the fiscal framework of Romania, it is useful to aggregate the data by taking into consideration the corporate income tax rate for different periods, as in table no. 3.

Table no. 3. The tax rates for individual dividend gains, individual interest gains, corporate income and the Miller's condition in Romania

Period	Tax rate for individual interest gains (%)	Tax rate for individual dividend gains (%)	Corporate income tax rate (%)	Miller's condition $\frac{(1-t_c)(1-t_s)}{(1-t_d)}<1$
01.01.1998 – 31.12.1999	1%	10%	38%	0,563 < 1
01.01.2000 – 31.12.2003	1%	5%	25%	0,7196 < 1
01.01.2004 – 31.12.2004	1%	10%	25%	0,681 < 1
01.01.2005 – 30.04.2005	1%	5%	16%	0,806 < 1
01.05.2005 – 31.12.2005	10%	10%	16%	0,84 < 1
01.01.2006 - prezent	16%	16%	16%	0,84 < 1

Source: Fiscal legislation

As the table no. 3 shows, the Miller condition is fulfilled through the entire period taken into consideration. For the maximization of the leveraged firm's value from individual's perspective, it is necessary to minimize the Miller's condition. This was accomplished in the first two years of the period, respectively 1998 and 1999, when the tax rate for individual gains was almost insignificant (1%), especially by comparison with corporate income tax rate (38%). In the next four years (2000 – 2003), Miller's condition increased from 0,563 to 0,7196 (27,81%), due to conjugated effects of both decreasing individual dividend gains and corporate income tax rates. In the following year (2004) the increasing of the tax rate applied for dividend led to the decrease of Miller's condition to 0,681. As for the last years of the period, the value for Miller's condition have continuously increased, mainly due to the equalization of the tax rates applied ($t_d = t_s$ in 2005; $t_d = t_s = t_c$ from 2006).

One can notice that the fiscal reform implied by the implementation of the flat tax at the beginning of 2005 had led to the increase of the Miller's condition, respectively to the reduction of the leveraged firm compared to the unleveraged firm. The flat tax has reduced the appetite of the shareholders for debt financing, as long as $t_d = t_s$. In these conditions, the Miller's model became identical with the Modigliani-Miller model:

$$V^L = V^U + [1 - \frac{(1 - t_c)(1 - t_s)}{(1 - t_d)}] \times D = V^U + [1 - (1 - t_c)]xD = V_U + t_c xD$$

Thus, the flat tax not only increases the Miller's condition, diminishing its appeal, but also makes the model equivalent with the Modigliani-Miller's model, rendering the model obsolete. This is a supplementary evidence for the neutrality of the flat tax, which does not offset the fiscal advantage of the debt financing at the corporate level and the fiscal disadvantage at the personal level.

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