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# The Role of Taxes and Leverage in the Evaluation of Capital Cost and the Capitalization of the Company

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## Abstract

In this paper the role of tax shield, taxes and leverage in the modern theory of the corporative finance is investigated. Modigliani–Miller theory, as well as modern theory of capital cost and capital structure by Brusov – Filatova – Orekhova are considered. It is shown, that the equity cost as well as the weighted average cost of capital decrease with the tax rate, while the capitalization increases. The detailed investigation of the dependence of the weighted average cost of capital WACC and the equity cost $k_e$ on the tax rate at fix leverage (debt capital fraction $w_d$) and on the leverage level at fix tax rate, as well as the dependence of $WACC$ and $k_e$ on company lifetime is made. We have introduced the concept of tax operation leverage. For companies with finite life-time a number of important qualitative effects, which have no analogies at perpetuity companies is found.

## Keywords

Taxes, Leverage Level, Brusov-Filatova-Orekhova (BFO Theory), Modigliani–Miller Theory

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## 1. Introduction

Modigliani and Miller in their paper in 1958 (Modigliani & Miller, 1958) have come to the conclusions, which are fundamentally different from the conclusions of traditional approach. They have shown that, in the framework of assumptions made by them the ratio between equity and debt capital in the company does not affect neither the cost of capital, nor company value.

In the context of the studies of the impact tax on the cost of capital and the company's capitalization we raised among the numerous assumptions Modigliani and Miller two of the most important:

1) corporate taxes and taxes on personal income of investors are absent; 2) all financial flows are perpetuity ones.

From the first of these assumptions Modigliani and Miller subsequently refused themselves and have modified their theory to the case of presence of corporate taxes and taxes on personal income of investors that have significantly altered the conclusions of their theory (Modigliani & Miller, 1958, 1963, 1966).

The failure of the second assumption has led to the creation

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of modern theory of capital cost and capital structure by Brusov – Filatova – Orekhova (Brusov & Filatova, 2011; Brusov, Filatova, Eskindarov, et al., 2011; Brusov, Filatova, Orehova, et al., 2011; Brusov, Filatova, & Orekhova, 2013b; Filatova, Orehova, & Brusova, 2008).

## 2. The Role of Taxes in Modigliani–Miller Theory

We analyze now the role of taxes in the Modigliani–Miller theory, studying the dependence of weighted average cost of capital WACC and the equity cost $k_e$ of tax on profit rate $T$.

Note, that there are many measures for evaluating how effectively a company's management team is managing the capital that shareholders entrust to it, among them two important (return on equity (ROE) and return on assets (ROA)), but we will concentrate on studying the dependence of weighted average cost of capital WACC and the equity cost $k_e$.

With this purpose we analyze the following formulas:

1) for weighted average cost of capital WACC one has

$$WACC = k_0(1 - w_d T). \quad (1)$$

$$WACC = k_0(1 - LT/(1+L)) \quad (2)$$

2) for the equity cost $k_e$ one has

$$k_e = k_0 + L(1-T)(k_0 - k_d). \quad (3)$$

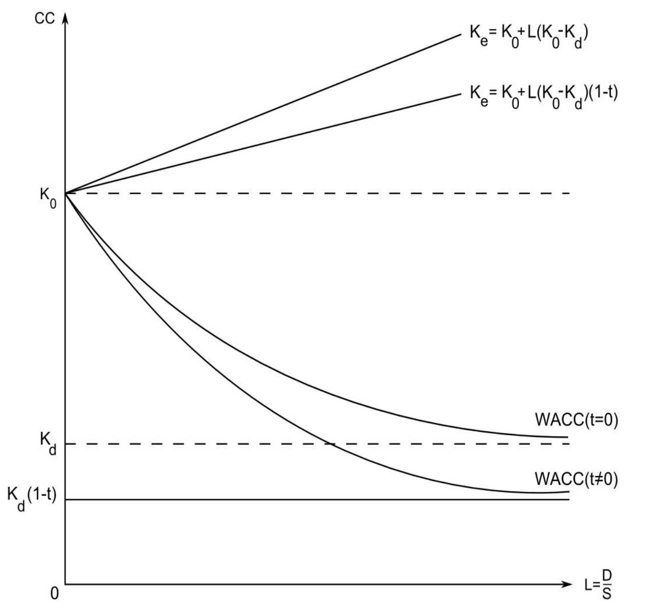


**Fig. 1.** Dependence of equity capital cost, debt cost and *WACC* on leverage in Modigliani - Miller theory without taxes ( t = 0 ) and with taxes ( t ≠ 0 )

Both dependences, weighted average cost of capital WACC and the equity cost $k_e$, are linear: they decrease linearly with the increase of tax on profit rate T.

For dependence of weighted average cost of capital WACC on tax on profit rate T negative tangent of tilt angle in $tg\beta = -k_0 L/(1+L)$ is growing in the module with the increase of the leverage level L, achieving maximum, equal $k_0$ at an infinite leverage level $L = \infty$ (share of equity capital is insignificantly small compared with the fraction of debt funds) (fig. 2 ).

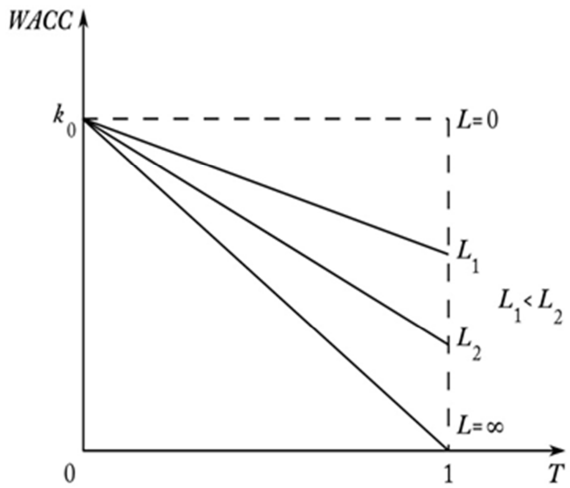


**Fig. 2.** The dependence of weighted average cost of capital WACC on tax on profit rate *T* at different fixed leverage level *L*.

Let us give a few examples:

1) in accordance to expression $\text{tg}\beta = -k_0 L/(1+L)$ one gets, that at $k_0 = 10\%$ and $L = 1$, i.e. $D = S$ increase of tax on profit rate $T$ on 10% leads to decrease of weighted average cost of capital WACC on 0,5%;

2) this dependence of weighted average cost of capital WACC on tax on profit rate $T$ will be even more significant at a higher leverage level $L$ and higher value $k_0$. For example, at $k_0 = 20\%$ and $L = 2$, the increase in T on 10% leads to a decrease in WACC on 1.33 %.

For dependence of the equity cost $k_e$ on tax on profit rate T from the analysis of formula $k_e = k_0 + L(1-T)(k_0 - k_d)$ it is seen that negative tangent of tilt angle $\text{tg}\gamma = -L(k_0 - k_d)$ is also increase in the module with the increase of the leverage level, in which connection all dependences at the different leverage levels $L_i$, based on the different points $k_e = k_0 + L_i(k_0 - k_d)$ when T=0, at T=1 converge at the point $k_0$;

3) In accordance with the formula $\text{tg}\gamma = -L(k_0 - k_d)$ we get

that, when $k_0 - k_d = 6\%$ and $L = 1$, i.e. $D = S$, the increase of tax on profit rate T on 10% leads to a reduction in the equity capital cost $k_e$ on 0.6 %;

4) This dependence of the equity cost $k_e$ on tax on profit rate T will be even more significant at a higher leverage level L and higher value $k_0 - k_d$. For example, at $k_0 - k_d = 10\%$ and $L = 2$, the increase in T on 10% leads to a decrease in $k_e$ on 2 %.

It should be noted that with the rising of tax on profit rate T the difference in the equity cost $k_e$ at various levels leverage decreases, disappearing at T=1.

This procedure recalls operational analysis, which examined dependence of financial results of the activities of the company on the costs and volumes of production and the implementation of the products, goods, services. The key elements of operational analysis of any enterprise are: operating lever; the threshold of cost-effectiveness; stock financial strength of enterprise. The operational arm is reflected in the fact that any change proceeds from the disposal always gives rise to a more severe change in earnings.

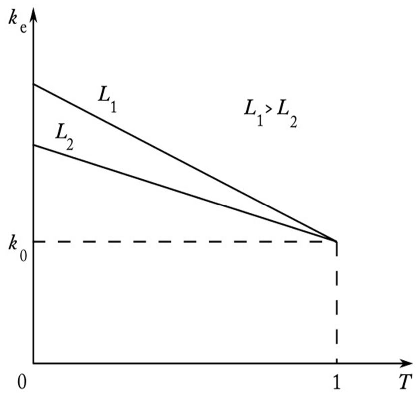


**Fig. 3.** Dependence of equity capital cost $k_e$ on tax on profit rate T at different leverage level L.

In the present case, as the effects of tax operational lever can be taken the ratio of change of weighted average cost of capital WACC to the change of tax on profit rate T, and the ratio of change of equity capital cost $k_e$ to the change of tax on profit rate T, i.e. we can introduce for the first time two tax operating levers:

- for weighted average cost of capital WACC:

$$L_{WACC} = \Delta WACC / \Delta T;$$

- for equity capital cost $k_e$:

$$L_{k_e} = \Delta k_e / \Delta T.$$

For the earlier examples the power of the lever is:

1) $L_{WACC} = 0,05$;

2) $L_{WACC} = 0,133$;

3) $L_{k_e} = 0,06$;

4) $L_{k_e} = 0,2$.

The higher value of the tax operational lever causes the greater change in capital cost of the company at fixed change of tax on profit rate T.

## 3. The Role of Taxes in Brusov – Filatova – Orekhova Theory

The solution of the problem of evaluation of the weighted average cost of capital WACC for companies with arbitrary lifetime has been done for the first time by Brusov, Filatova and Orekhova (Brusov & Filatova, 2011; Brusov, Filatova, Eskindarov, et al., 2011; Brusov, Filatova, Orehova, et al., 2011; Brusov, Filatova, & Orekhova, 2013b; Filatova, Orehova, & Brusova, 2008).

Following them, consider the situation for the finite life-time of the company. In this case the Modigliani–Miller theorem

$$V_L = V_0 + DT \tag{4}$$

is changed by

$$V = V_0 + (PV)_{TS} = V_0 + DT\left[1 - (1 + k_d)^{-n}\right] \tag{5}$$

where

$$(PV)_{TS} = k_d DT \sum_{t=1}^{n} (1+k_d)^{-t} = DT\left[1 - (1 + k_d)^{-n}\right]$$

represents a tax shield for n-years.

It is seen that the capitalization of financially dependent (leverage) company linearly increasing with the growth of the tax on profit rate (as well as in the limited case of Modigliani–Miller), however, the tilt angle of the linear function $V_L(T)$ is less than in the perpetuity case:

$$\text{tg}\delta = T\left[1 - (1 + k_d)^{-n}\right] \le T.$$

We will carry out the study the dependence of weighted average cost of capital of the company $WACC$ and its equity cost $k_e$ on tax on profit rate in two ways:

1) we will study the dependence of weighted average cost of capital of the company $WACC$ and its equity cost $k_e$ on tax on profit rate at fixed leverage level and at different life-time of the company;

2) we will study the dependence of weighted average cost of capital of the company $WACC$ and its equity cost $k_e$ on leverage level at fixed tax on profit rate and at different life-time of the company;

In both cases we will use Brusov – Filatova – Orekhova formula for weighted average cost of capital of the company $WACC$:

$$\frac{\left[1-(1+WACC)^{-n}\right]}{WACC}=\frac{\left[1-(1+k_0)^{-n}\right]}{k_0\left[1-\omega_d T\left(1-(1+k_d)^{-n}\right)\right]}. \qquad (6)$$

## 3.1. Weighted Average Cost of Capital of the Company *WACC*

Dependence of weighted average cost of capital of the company $WACC$ on tax on profit rate T at fixed leverage level L

For $n=2, k_0=18\%, k_d=10\%$ the dependences of weighted average cost of capital of the company $WACC$ on tax on profit rate T at fixed leverage level L (fraction of debt capital $w_d$) are shown at fig. 4.

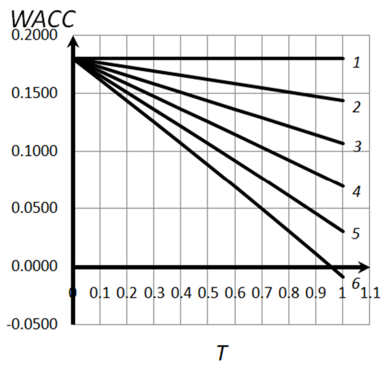


**Fig. 4.** Dependence of weighted average cost of capital of the company $WACC$ on tax on profit rate T at fixed leverage level L (fraction of debt capital $w_d$): *1* - $w_d=0$ ; *2* - $w_d=0,2$ ; *3* - $w_d=0,4$ ; *4* - $w_d=0,6$ ; *5* - $w_d=0,8$ ; *6* - $w_d=1$ .

It is quite obvious that dependences are very similar to that in fig. 2, differing by the tilt angle s and the distance between curves (in fact, the dependences are very close to the linear ones). With the increase of debt capital fraction $w_d$ the curves become more steep, the relevant tax operating lever decreases, which means the raise of the impact of the change of the tax on profit rate on the weighted average cost of capital.

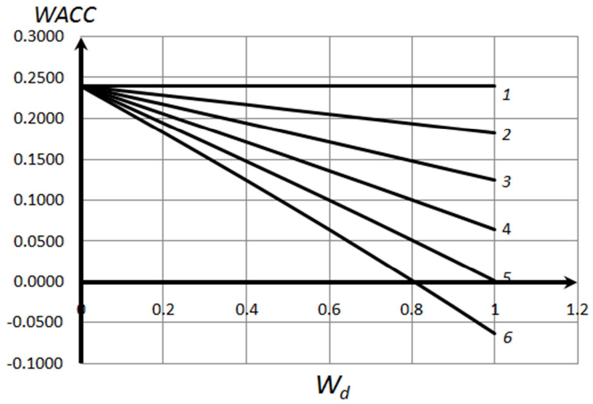


**Fig. 5.** Dependence of weighted average cost of capital of the company $WACC$ on debt capital fraction $w_d$ at different tax on profit rates T: *1* – *T*=0; *2* – *T*=0,2; *3* – *T*=0,4; *4* – *T*=0,6; *5* – *T*=0,8; *6* - *T*=1.

Dependence of weighted average cost of capital of the company $WACC$ on debt capital fraction $w_d$ at fixed tax on profit rate T Dependences of weighted average cost of capital of the company $WACC$ on debt capital fraction $w_d$ at fixed tax on profit rate T turn out to be linear ones as well. For example, for $n=3, k_0=24\%, k_d=20\%$ we got the dependences, represented at fig. 5.

The dependences, shown at fig. 5 are not surprising, because the fraction of debt capital and tax on profit rate are included in the Brusov – Filatova – Orekhova formula (6) in a symmetrical manner. With the increase of the tax on profit rate T the curves become more steep, which means the raise of the impact of the change of the debt capital fraction $w_d$ on the weighted average cost of capital $WACC$.

Dependence of weighted average cost of capital of the company $WACC$ on leverage level L at fixed tax on profit rate T Dependence of weighted average cost of capital of the company $WACC$ on leverage level L at fixed tax on profit rate T becomes an essentially nonlinear.

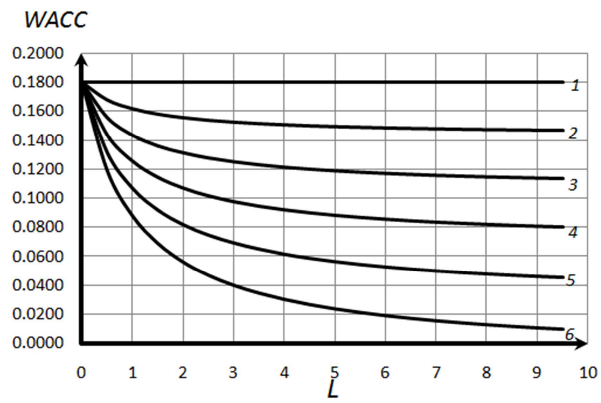


**Fig. 6.** Dependence of weighted average cost of capital of the company $WACC$ on leverage level *L* at different fixed tax on profit rates T : *1* – *T* = 0; 2 – *T* = 0, 2; *3* – *T* = 0,4; *4* – *T* = 0,6; *5* – *T* = 0, 8; 6 – *T* = 1.

For example, for $n = 3; k_0 = 18\%, k_d = 12\%$ we got the dependences, represented at fig. 6.

With the increase of the tax on profit rate T the curve of the dependence of weighted average cost of capital of the company $WACC$ on leverage level L becomes more steep, i.e. at the same leverage level L its change leads to bigger change of $WACC$ at higher tax on profit rate T.

At tax on profit rate $T \le 40\%$ weighted average cost of capital of the company $WACC$ locates within $k_d \le WACC \le k_0$.

At tax on profit rate $T \ge 40\%$ weighted average cost of capital of the company $WACC$ falls below $k_d$ at certain leverage level $L^*$, which decreases with increase of $T$.

## 3.2. Equity Cost $K_e$ of the Company

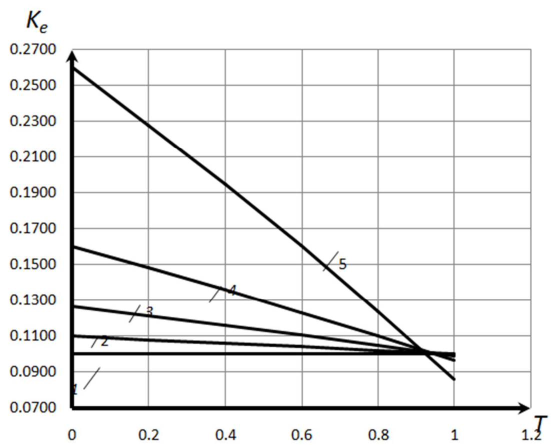


**Fig. 7.** Dependence of equity cost $k_e$ of the company on tax on profit rate T at fixed debt capital fraction $w_d$ ($n = 5, k_0 = 10\%, k_d = 6\%$): *1* - $w_d = 0$; *2* - $w_d = 0,2$; *3* - $w_d = 0,4$; *4* - $w_d = 0,6$; *5* - $w_d = 0,8$.

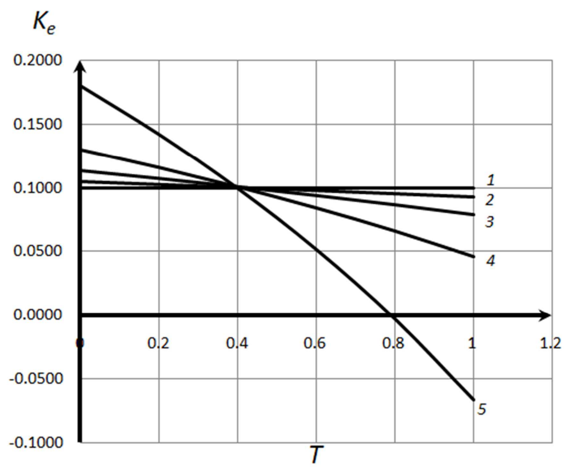


**Fig. 8.** Dependence of equity cost $k_e$ of the company on tax on profit rate $T$ at fixed debt capital fraction $w_d$ ($n = 10, k_0 = 10\%, k_d = 8\%$): *1* - $w_d = 0$; *2* - $w_d = 0,2$; *3* - $w_d = 0,4$; *4* - $w_d = 0,6$; *5* - $w_d = 0,8$

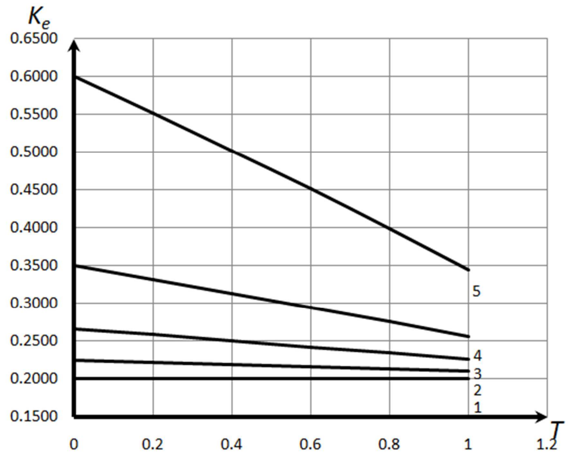


**Fig. 9.** Dependence of equity cost $k_e$ of the company on tax on profit rate $T$ at fixed debt capital fraction $w_d$ ($n = 3, k_0 = 20\%, k_d = 10\%$): *1* - $w_d = 0$; *2* - $w_d = 0,2$; *3* - $w_d = 0,4$; *4* - $w_d = 0,6$; *5* - $w_d = 0,8$.

Dependence of equity cost $k_e$ of the company on tax on profit rate T at fixed leverage level L Here are three figures, showing the dependence of equity cost $k_e$ on tax on profit rate at different (fixed) leverage level (debt capital fraction $w_d$) for different parameter sets $n, k_0, k_d$ (figs. 7 - 9).

It should be noted that:

(1) all dependencies are linear and $k_e$ decreases with increasing tax on profit rate T;

(2) with the increase of the debt capital fraction $w_d$ initial values $k_e$ significantly grow and exceed $k_0$;

(3) Lines, corresponding to the different values of the debt capital fraction $w_d$ intersect at the same point (at a certain value of tax on profit rate $T^*$), dependent on parameters $n, k_0, k_d$ (see fig. 7 and 8);

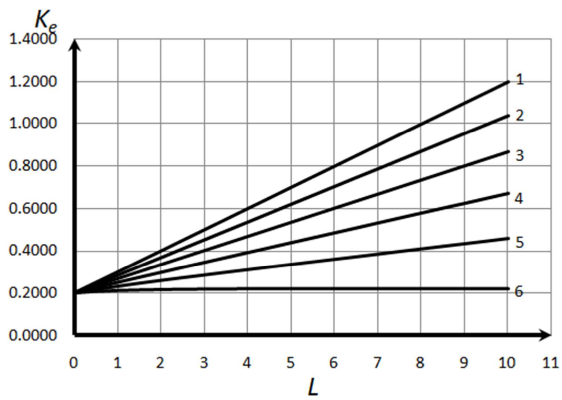


**Fig. 10.** Dependence of equity cost $k_e$ of the company on leverage level L on fixed tax on profit rate T for the case $n = 7, k_0 = 20\%, k_d = 10\%$: 1 - $T = 0$; 2 - $T = 0,2$; 3 - $T = 0,4$; 4 - $T = 0,6$; 5 - $T = 0,8$; 6 - $T = 1$.

(4) At some values of parameters $n, k_0, k_d$ the crossing of all lines at a single point can not take a place at any tax on profit rate $0 < T \leq 100\%$. With a large gap between $k_0$ and $k_d$ a point of crossing of all the lines lies in the non-existent (the "non-financial") region $T^* > 100\%$. (See Fig. 9). For data of fig. 9 $T^* \approx 162\%$ ) *Dependence of equity cost* $k_e$ *of the company on leverage level L on fixed tax on profit rate T* The results of the calculations of dependence of equity cost $k_e$ of the company on the leverage level L in Excel for the case: $n = 7, k_0 = 20\%, k_d = 10\%$ (at a fixed tax on profit rate T ) are presented in the table and in the figure 10.

**Table 1.** Dependence of equity cost $k_e$ of the company on leverage level L on fixed tax on profit rate T for the case $n = 7, k_0 = 20\%, k_d = 10\%$.

| T | L | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **0,0** | **1,0** | **2,0** | **3,0** | **4,0** | **5,0** | **6,0** | **7,0** | **8,0** | **9,0** | **10** |
| 0,0 | 0,2000 | 0,3000 | 0,4000 | 0,5000 | 0,6000 | 0,7000 | 0,8000 | 0,9000 | 1,0000 | 1,1000 | 1,2000 |
| 0,2 | 0,2000 | 0,2842 | 0,3682 | 0,4522 | 0,5362 | 0,6202 | 0,7042 | 0,7874 | 0,8713 | 0,9551 | 1,0389 |
| 0,4 | 0,2000 | 0,2677 | 0,3344 | 0,4008 | 0,4672 | 0,5335 | 0,5998 | 0,6661 | 0,7323 | 0,7986 | 0,8649 |
| 0,6 | 0,2000 | 0,2504 | 0,2984 | 0,3457 | 0,3928 | 0,4397 | 0,4865 | 0,5334 | 0,5802 | 0,6265 | 0,6731 |
| 0,8 | 0,2000 | 0,2323 | 0,2601 | 0,2861 | 0,3117 | 0,3369 | 0,3619 | 0,3867 | 0,4116 | 0,4364 | 0,4612 |
| 1,0 | 0,2000 | 0,2132 | 0,2185 | 0,2210 | 0,2223 | 0,2229 | 0,2231 | 0,2233 | 0,2231 | 0,2228 | 0,2224 |

Dependence of equity cost $k_e$ of the company on leverage level $L$ on fixed tax on profit rate T with a good accuracy is linear. The tilt angle always decreases with increasing tax on profit rate T, and in some cases the behaviour $k_e(L)$ is similar to behaviour in the perpetuity case (see fig. 10).

However, for companies with finite life-time (finite age), along with the behaviour $k_e(L)$, similar to behaviour in case of Modigliani–Miller perpetuity companies (see fig. 10), for some sets of parameters $n, k_0, k_d$ there is a qualitatively different dependence $k_e(L)$ (see fig. 11).

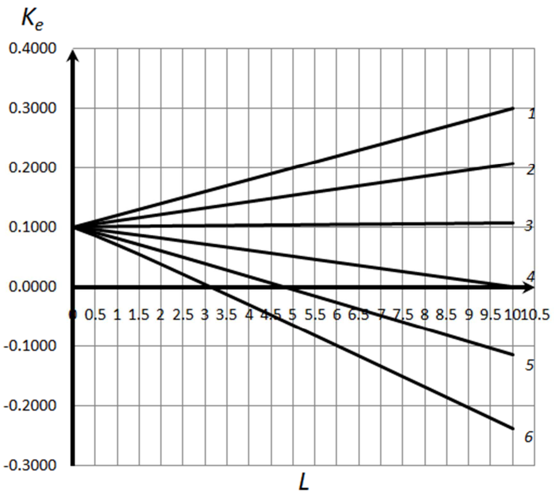


**Fig. 11.** Dependence of equity cost $k_e$ of the company on leverage level L on fixed tax on profit rate T for the case: $n = 7, k_0 = 20\%, k_d = 10\%$ ( $n = 5, k_0 = 10\%, k_d = 8\%$ ): 1 - $T = 0$ ; 2 - $T = 0{,}2$ ; 3 - $T = 0{,}4$ ; 4 - $T = 0{,}6$ ; 5 - $T = 0{,}8$ ; 6 - $T = 1$ .

As it can be seen from fig. 11, starting with some of the values of tax on profit rate $T^*$ (in this case $T^* = 40\%$ , although for the other parameter sets $n, k_0, k_d$ a critical tax rate $T^*$ could be even less) one has not the growth of the equity capital cost of the company but its descending (fig. 11). Let us repeat once more that existence or absence of this effect depends on a set of parameters $k_0, k_d, n$ .

Note that this is a principally new effect, which may take place only for the company with the finite life-time and which is not observed in perpetuity limit. For example, from the formula (8)

$$k_e = k_0 + L(1 - T)(k_0 - k_d)$$

it follows, that at $T = 1$ (100%) equity cost $k_e$ does not change with leverage: $k_e = k_0$, i.e descending of equity cost $k_e$ with leverage does not occur at any tax on profit rate *T*.

### 3.3. Dependence of WACC and $K_e$ on Life-Time of Company

The issue of dependency of $WACC$ and $k_e$ on the length of life of the company within the theory of Modigliani-Miller even though it is not possible to place: in their theory the parameter "time" is absent, since all the companies are perpetuity ones.

Within the modern Brusov – Filatova – Orekhova theory, it becomes possible to study the dependence of $WACC$ and $k_e$ on the company life-time. Below we will undertake a detailed study of this problem: the dependences $WACC(n)$ and $k_e(n)$ will be examined at different tax on profit rate $T$ and leverage level L for different sets of parameters $k_0, k_d, T, w_d$ .

*Dependence of weighted average cost of capital of the company WACC on life-time of company at different fixed tax on profit rate* T Considering dependence is shown at fig.12.

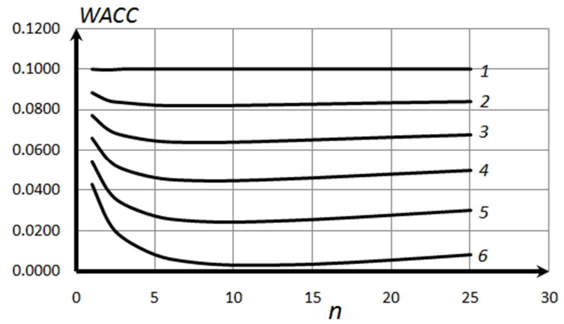


**Fig. 12.** Dependence of weighted average cost of capital of the company WACC on life-time of company at different fixed tax on profit rate T ( $w_d = 0,7, k_0 = 10\%, k_d = 8\%$ ): 1 - $T = 0$ ; 2 - $T = 0,2$ ; 3 - $T = 0,4$ ; 4 - $T = 0,6$ ; 5 - $T = 0,8$ ; 6 - $T = 1$ .

Weighted average cost of capital of the company $WACC$ decreases with increasing of company life-time n, in an effort to its perpetuity limit. The initial values $WACC$ (at n= 1) will decrease with increasing of tax on profit rate T (in accordance with the received previously dependencies $WACC(T)$, and a range of WACC changes is growing with increasing T.

*Dependence of weighted average cost of capital of the company WACC on life-time of company at different fixed fraction of debt capital* $w_d$ .

Considering dependence is shown at fig.13.

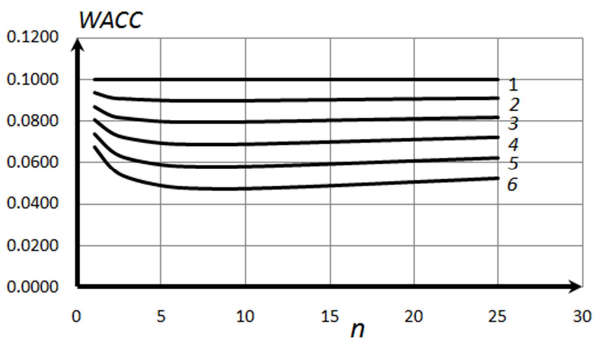


**Fig. 13.** Dependence of weighted average cost of capital of the company WACC on life-time of company at different fixed fraction of debt capital $w_d$ ( $T = 40\%, k_0 = 10\%, k_d = 8\%$ ): 1 - $w_d = 0$ ; 2 - $w_d = 0,2$ ; 3 - $w_d = 0,4$ ; 4 - $w_d = 0,6$ ; 5 - $w_d = 0,8$

The weighted average cost of capital of the company WACC decreases with the life-time of company n, tending to its perpetuity limit. The initial values $WACC$ (at n= 1) decrease with the increase of fraction of debt capital (in accordance with the previously received dependencies $WACC(w_d)$), and a range of $WACC$ changes is growing with increasing of $w_d$ .

*Dependence of equity cost of the company* $k_e$ *on life-time of company n at different fixed fraction of debt capital* $w_d$ .

Considering dependence is represented at Fig. 14.

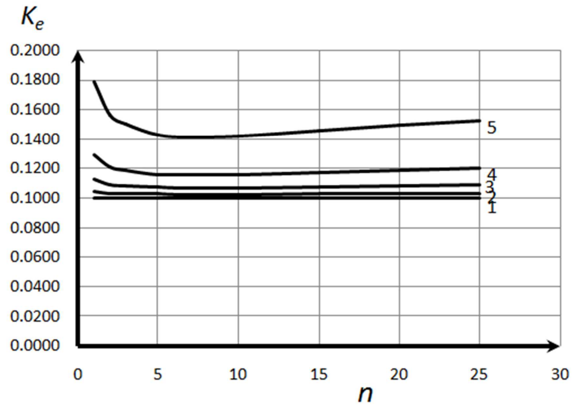


**Fig. 14.** Dependence of equity cost of the company $k_e$ on life-time of company n at different fixed fraction of debt capital $w_d$ ( $T = 20\%, k_0 = 10\%, k_d = 8\%$ ): *1* - $w_d = 0$ ; *2* - $w_d = 0,2$ ; *3* - $w_d = 0,4$ ; *4* - $w_d = 0,6$ ; *5* - $w_d = 0,8$

The equity cost of the company $k_e$ decreases with the life-time of company *n*, tending to its perpetuity limit. The initial values $k_e$ (at *n* = 1) decrease significantly with the increase of fraction of debt capital $w_d$ . A range of $k_e$ changes is growing with increasing of $w_d$ .

It should be noted that the differences in equity cost of the company at a fixed n, starting from $w_d = 0,5$, become and remain significant (and constant for a fixed change in the fraction of debt capital $\Delta w_d$ and at $n \geq 6$ ).

The situation will change with increase of tax on profits rate T. To demonstrate this fact we show the similar data, increasing tax on profit rate T twice (from 20% up to 40%) (fig. 15).

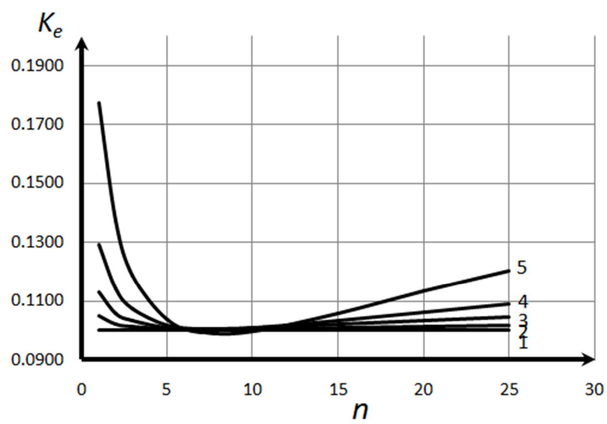


**Fig. 15.** Dependence of equity cost of the company $k_e$ on life-time of company n at different fixed fraction of debt capital $w_d$ ( $T = 40\%, k_0 = 10\%, k_d = 8\%$ ): - $w_d = 0$ ; *2* - $w_d = 0,2$ ; *3* - $w_d = 0,4$ ; *4* - $w_d = 0,6$ ; *5* - $w_d = 0,8$ .

It can be observed that with increase in tax on profits rates in 2 times, the region, where the differences in equity cost of capital $k_e$ of the company are feeling at various fractions of debt capital $w_d$ have narrowed down to 6 years, while at $n \geq 6$ equity cost of capital $k_e$ remains virtually equal $k_0$, only slightly fluctuate around this value.

*Dependence of equity cost of the company $k_e$ on life-time of company $n$ at different fixed tax on profit rate $T$* Considering dependence is represented at fig. 16.

The equity cost of the company $k_e$ decreases with the life-time of company $n$, tending to its perpetuity limit. Under growing of tax on profit rates $T$ the equity cost of the company $k_e$ decreases (at fixed fraction of debt capital $w_d$, while range of $k_e$ changes increases.

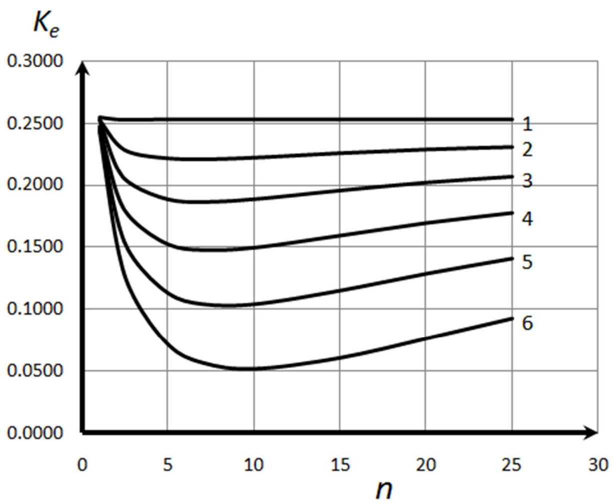


**Fig. 16.** Dependence of equity cost of the company $k_e$ on life-time of company n at different fixed tax on profit rates T ( $w_d = 0,7, k_0 = 16\%, k_d = 12\%$ ): *1* - $T = 0$ ; *2* - $T = 0,2$ ; *3* - $T = 0,4$ ; *4* - $T = 0,6$ ; *5* - $T = 0,8$ ; *6* - $T = 1$

## 4. Conclusions

In this paper the role of tax shields, taxes and leverage is investigated within the theory of Modigliani-Miller as well as within the modern theory of corporate finance by Brusov-Filatova-Orekhova [27].

It is shown that equity cost of the company as well as weighted average cost of capital decrease with the growth of tax on profits rates. A detailed study of the dependence of weighted average cost of capital $WACC$ and equity cost of the company $k_e$ on tax on profits rates at fixed leverage level (fixed debt capital fraction $w_d$ ) as well as on leverage level (debt capital fraction $w_d$ ) at fixed tax on profits rate has been done.

The dependences of weighted average cost of capital $WACC$ and equity cost of the company $k_e$ on company lifetime have been investigated as well.

The concept "tax operating lever" has been introduced. For companies with finite life-time a number of important qualitative effects that do not have analogues for perpetuity companies has been detected.

One such effect - decreasing of equity cost with leverage level at values of tax on profits rate T, which exceeds some critical value T * - is described in details in chapter 9 (at certain ratios between the debt cost and equity capital discovered effect takes place at tax on profits rate, existing in the western countries and in Russia, that provides practical value effect.) His accounting is important in improving tax legislation and may change dividend policy of the company.

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