Capital structure enterprise value conditions as an object of management

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Abstract. The problem of determination of the composition and structure of sources of investment is known in economic literature as a problem of the structure of the capital and is topical not only for Kazakhstan companies. What is the capital structure of the organization and what is the optimal ratio in the structure of own and borrowed funds? When can we speak about efficient use of capital and on the basis of what indicators should degree of effectiveness be assessed? These issues are considered in the article the author. Special attention is paid to consideration of such basic economic concepts and the relationships between them as capital cost source of capital, the weighted average and the marginal cost of capital, capital structure, financial leverage, target and optimal capital structure, the market value of the organization.

The capital structure is the ratio of own and borrowed funds used by the enterprise in the process of its business activities.

The conditions for the formation of such financial results of an enterprise as return on assets, return on equity, level of financial stability and solvency, level of financial risks of millers ultimately table the effectiveness of financial management as a whole depend on the capital structure, which is why the positive capital structure is an object of study for many economists[1].

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Analysis of the effectiveness of the use of own and borrowed capital of organizations is a way of accumulation, transformation and use of accounting information and reporting, with the goal [2]:

- evaluate the current and future financial condition of the separation of the organization, that is, the use of equity and borrowed capital;
- substantiate the possible and acceptable pace of development of the organization from the position of providing them with sources of financing;
- identify available sources of funds, evaluate rational ways to mobilize them;
- to predict the position of the company in the capital market.

Analysis of the effectiveness of the use of capital of organizations is carried out using various types of models to structure and identify the relationship between the main indicators. In the current situation, descriptive models are most acceptable for analysis. At the same time, the cost of applying predicitve and normative models for the analysis of the efficiency of using own and borrowed capital is not resolved [3].

Descriptive models, or models of a descriptive nature, are fundamental both for conducting capital analysis and for assessing the financial condition of an organization. These include: building a system of balance sheets; presentation of financial statements in various analytical sections; enterprise structural and dynamic reporting analysis; coefficient and factor analysis; analytical notes to reporting. All of these models are based on the use of accounting information.

Structural analysis is a set of methods for studying structure. It is based on the presentation of financial statements in the form of relative values characterizing the structure, that is, the material-intensive share (specific weight) of private indicators in the summarized total data on equity and borrowed capital is calculated.

Dynamic analysis allows you to identify trends in individual articles of equity and borrowed capital or their groups included in the financial statements [4].

Coefficient analysis is the leading method of analyzing the effectiveness of the impact of using the capital of an organization, used by various groups of users: managers, analysts, shareholders, investors, creditors, etc.

Among the questions that financiers are faced with, one of the main ones is the following: how should a firm generate the capital it needs? Should she resort to borrowed funds or is it enough to limit herself to equity?

In 1958, Franco Modigliani and Merton Miller published a work containing one of the most amazing theories of modern financial managemen, they came to the conclusion that the value of any company is determined solely by its future income and does not depend on the structure of its capital. This conclusion had such large-scale consequences that this work had a greater impact on the practice of financial management than all previously published comparisons.

In their work, Modigliani and Miller, on the basis of very strict given surplus conditions, including the presence of ideal capital markets, using arbitrage operations, that the capital structure does not affect the value of the company [5].

The essence of the other proof of interest is as follows: if the financing of the company's activities is more profitable from borrowed capital, rather than from their own sources of funds, then the owners of shares of a company with a mixed capital structure will prefer to sell part of the shares of their company, using the proceeds of the project to buy shares of a company that does not use attracted sources, and making up for the lack of financial resources at the expense of borrowed capital [6].
Simultaneous effects of transactions with securities of a firm with a relatively high and relatively low share of borrowed capital will lead to the fact that the long-term prices of such firms will approximately coincide.

Thus, in reality, according to Modigliani and Miller, the value of a firm's shares is not related to the ratio between its debt and equity.

If the Modigliani-Miller theory were absolutely correct, managers would not need to worry when making decisions about the capital structure of firms, because, according to the theory, such decisions do not affect stock prices.

However, like most economic theories, the Modigliani-Miller concept is true only if certain prerequisites are present. By demonstrating the conditions under which the capital structure does not affect the firm's value, Modigliani and Miller made an important contribution to understanding the possible impact of debt financing.

In 1963, Modigliani and Miller published a second paper on the structure of capital, in which they introduced their initial model of such a factor as taxes on value corporations, thereby softening the previously accepted assumption of zero taxation [7].

Taking into account the presence of corporate taxes, it was shown that the share price of a firm is directly related to the use of debt financing by that firm: the higher the share of borrowed capital, the higher the share price.

Modigliani and Miller began their analysis by assuming that there were no taxes on corporate or private income.

Approval 1. The value of any firm is determined by capitalizing its net profit at a constant rate corresponding to the firm's risk class. According to the Modigliani-Miller model, in the absence of taxes, the value of a firm does not depend on the way it is financed.

Approval 2. The price of equity capital dependent firms is equal to the sum of the prices of share capital financial, an independent company of the same group of risk and risk Premia, the magnitude of which depends on the difference between prices of equity and borrowed capital for financially independent firms, and the level of financial oligarchical, i.e. the ratio of borrowed and equity capital.

Statement 2 States that as the share of borrowed capital increases, the price of its share capital also increases, and in a mathematically accurate way [8].

Considered together, the two Modigliani-Miller statements mean that an increase in the share of the average debt capital in the source structure does not increase the value of the firm, since the benefits of cheaper debt capital will be exactly balanced by an increase in the degree of risk and, consequently, the price of its equity capital.

Thus, the Modigliani-Miller mill theory States that, in the absence of taxes, both the value of a firm and the total price of its capital are completely independent of the source structure.

According to the revised Modigliani-Miller theory, firms should be 100% funded with borrowed capital, as this would provide them with the highest share prices.

This conclusion is due to the corporate tax structure that exists in the United States: shareholders' income must be paid from after-tax profits, and creditors' payments must be made from pre-tax profits.

This asymmetric taxation results in an increase in the amount of the company's gross income remaining at the disposal of investors [9].

However, usually the share of loans in the company's capital is very far from 100%. Later, various researchers, trying to modify the theory of Modigliani-Miller literate, in order to explain the actual state of things, softened many of the original propositions of this theory. It turned out that some of these assumptions do not have a significant impact on the results obtained. However, when such a factor as the cost of financial difficulties is
included in the model, the picture changes dramatically due to the unfavorable structure of financial capital.

Savings due to lower tax payments increase the value of the company as the share of loans in its capital increases. However, starting from a certain point, when the share of borrowed capital increases, the value of the firm begins to decrease, since the savings on taxes are more than covered by the increase in costs due to the need to maintain a more risky structure of sources of funds [10].

Modigliani-Miller's theory, modified to take into account the cost factor of financial difficulties, states: the presence of a certain share of borrowed capital benefits the firm; excessive use of borrowed capital harms the firm; each firm has its own optimal share of borrowed capital.

Thus, the modified Modigliani-Miller theory, called the trade-off theory between savings from lower tax payments and financial costs, allows for a better understanding of the factors that determine the optimal capital structure. Although this theory has undeniable appeal, the empirical scientific evidence for its correctness is very weak. Obviously, other factors must be taken into account when making financial decisions [11].

Based on the assumptions made by Modigliani-Miller insurance, the following rules were derived.

Table 1-Modigliani-Miller Rules

| Rule #1 | The value of a firm does not depend solely on its financing strategy (i.e., its capital structure): $V_U = V_L$ |
|--------|----------------------------------------------------------------------------------------------------------|
| Rule #2 | The expected rate of return on stocks leveraged (r$_E$,L) of the company equal to the expected rate of return on stocks delivered (r$_E$,U) plus a premium related to financial risk equal to the debt (D) to its equity (E), multiplied by the difference between the expected rate of return on stocks delivered firms and debt: $r_E,L = r_E,U + (r_E,L - r_d) * D/E$ |

This rule states that no matter what the distribution of capital is between debt instruments and shares, the value of assets and investments is determined solely by the assets and investments themselves. To confirm this statement, the authors of Modigliani-Miller cite the fact that investors can always replace corporate borrowing with personal financing. In this case, the company cannot do anything for the shareholders that they could not do themselves, that is, a loan does not change the value of the company [12].

Two firms in the Modigliani-Miller model, differing only in capital structure, must have the same value, otherwise the shareholders from the company with the higher price will go to the company with the lower price, which in the perfect market will equalize the value of the companies and their shares.
The figure is based on the assumption that the company makes additional borrowings (practically without increasing risk), while having a rather low level of debt obligations. Thus, rd is independent of D / E, and rE increases linearly with D / E. When a company carries out larger loans, the risk of default is increased and higher interest rates are required from the company. According to Modigliani-Miller Rule No. 2, when this happens, the growth rate rE decreases. This is mainly due to the fact that holders of debt obligations begin to take on part of the business risk of the company, that is, the impact of the greater the level of debt of the company, the greater part of the risk passes from shareholders to creditors.
Financial leverage (financial leverage) is the ratio of borrowed capital to equity, it characterizes the stability of the company. The smaller the financial leverage, the more stable the position. On the other hand, borrowed capital allows you to increase the return on equity ratio, that is, to get additional profit on equity.

The indicator that reflects the level of additional profit when using borrowed capital is called the financial leverage effect. It is calculated using the following formula

\[ EFR = (1 - S_n) \times (KR - S_k) \times \frac{ZK}{SK}, \]

where EFR is the effect of financial leverage, \(^\%\). 
CH – income tax rate, in decimal terms. 
KR – return on assets ratio (the ratio of gross profit to the average value of assets), \(^\%\). 
SK – the average interest rate for a loan, \(^\%\). For a more accurate calculation, you can take the weighted average rate for the loan. 
ZK – the average amount of borrowed capital used.
SK – the average amount of equity.

You can make 2 conclusions:
✓ The efficiency of using borrowed capital depends only on the ratio between the return on assets and the interest rate for the loan.
✓ If the loan rate is higher than the return on assets, the use of borrowed capital is unprofitable.
✓ Other things being equal, a greater financial leverage has a greater effect.

To improve the efficiency of capital use (optimizing the relationship between financial stability, price, and return on capital), the capital structure is analyzed.

Let's consider the process of optimizing the capital structure using the method described by I. A. Blank. In accordance with this method, the attraction of additional capital, both from the company's own sources of financing and from borrowed funds, has its limits and is usually associated with an increase in its weighted average cost. To attract investors, you need to pay more income on shares or bonds when placing an additional issue.

When receiving additional loans, the value of the maximum coefficient of autonomy and, as a consequence, solvency decreases, which means that the interest rate for the loan increases due to an increase in the level of risk of bankruptcy. Similarly, when additional loans are invested in capital goods, inventory, and other low-liquid assets, the liquidity ratio decreases, which also leads to an increase in the interest rate for the loan [13].

Attracting additional loans with a high level of relative financial leverage, and therefore financial risk, is possible only under conditions of an increased interest rate for the loan, taking into account the risk premium for the Bank.

The numerical expression of the company's risk is obtained by combining the average value of the share capital and the cost of debt. The result will be the weighted average cost of your total capital (WACC—weighted average cost of capital).

It is calculated as follows:

First, the marginal cost of debt after tax is multiplied by the share of debt in the capital structure.

Second, the cost of equity is multiplied by the share of equity in the capital structure.

Third, both results add up.
Here, the marginal cost of debt is used, since it is assumed that the investment in question requires "new" capital. Taxes are deducted from the value of the company's debt, because they are not levied on the debt (dividends on preferred shares are taxed on profit, as well as ordinary shares, that is, dividends on preferred shares are not deducted by the Issuer from taxable profit; interest payments on bond effect loans are not taxed on profit).

Since the price of borrowed capital already includes inflation accounting, the correction for inflation in this case is not carried out, and accordingly, when calculating the price of equity, this inflation should be taken into account.

Formula for calculating the average weighted cost of total capital

\[
WACC = \frac{EC}{EC + LC} \times \frac{DP}{NI} + \left(1 - \frac{TRP}{100}\right) \times \left(\frac{LC}{EC + LC} \times RC\right)
\]

(2)

where WACC is the weighted average cost of total capital, %;
DP - amount of dividend payments, %;
NI - net income, KZT RC - the level of interest rates for the loan, %;
TRP - income tax rate, %;
EC - own capital, tenge;
LC - borrowed capital, tenge.

For a variant with multiple sources of borrowed funds, the formula is modified accordingly. Depending on the type of total capital selected, borrowed funds are taken into account, and the amount of borrowed funds and shareholders' equity is equal to the total capital.

Since the amount of assets is equal to the amount of liabilities or, what is the same, total capital, this means that ROA is the profitability of total capital, and WACC is its cost.

Interest on a loan in the amount of (9,5 * the refinancing rate of the Central Bank of the Republic of Kazakhstan) is included in the cost of products sold (it has the property of tax protection). The remainder is paid out of the collateral's profit after income tax [14].

In addition to interest on Bank loans above the refinancing rate increased by a factor of 9,5, mandatory payments attributed by the organization to a decrease in after-tax profit include:

1 dividends on preferred shares and interest on bonds;
2 tax payments paid on profit after tax;
3 penalties to be paid to the budget and extra-budgetary funds and incurred for violation of contracts, etc.

Formula for calculating the weighted average cost of total capital, taking into account the refinancing rate

\[
WACC = \frac{EC}{EC + LC} \times \frac{DP}{NI} + \left(1 - \frac{TRP}{100}\right) \times \left(\frac{LC}{EC + LC} \times 9,5 \times RefR\right) + \frac{LC}{EC + LC} \times (RC - 9,5 \times RefR)
\]

(3)

where RefR - refinancing of the Central Bank of Kazakhstan, %
DP - amount of dividend payments, %
NI - net profit, tenge
RC - the level of interest rates for the loan, %
TRP - income tax rate, %
EC - own capital, tenge
LC - borrowed capital, tenge
To improve the efficiency of capital use (optimizing the relationship between financial stability, price, and return on capital), the capital structure is analyzed [17].

The return on equity depends on the ratio of equity to debt, return on assets, income tax rate, and the ratio of the loan rate to return on assets. An increase in the share of borrowed funds provides an increase in the return on equity, provided that the return on assets is higher than the interest rate on credit resources, taking into account the tax corrector. But at the same time, it is necessary to take into account that when the share of debt financing increases, not only the profitability, but also the risk of shareholders increases.

Formula used to maximize return on equity

\[
ROE = \left( 1 - \frac{TRP}{100} \right) \times ROA \times \left( 1 + \frac{LC}{EC} \times \left( 1 - \frac{RC}{ROA} \times \left( 1 - \frac{TRP}{100} \right) \right) \right)
\]

(4)

where ROE is return on equity, %;
TRP-income tax rate, %;
ROA-return on assets, %;
RC-the rate level for the loan, % (according to the DUO);
EC - own capital, tenge;
LC-borrowed capital, tenge
LC/EC-share of borrowed capital, tenths.

Comparing ROE with ROA shows the impact of debt capital on shareholder returns. For a more accurate calculation, it is necessary to take into account that if the rates on loans exceed 9.5 * R of the Central Bank of Kazakhstan refinancing, the calculation is made taking into account the fact that the interest on the loan exceeding 1.1*RREF will not have the property of protection from income tax. profitability Please note that the refinancing rate should be the one that was in effect on the day the loan was received, not the one that is valid in the period for which interest is accrued [15, 16].

The formula used to maximize the return on equity taking into account the refinancing rate of the

\[
ROE = \left( 1 - \frac{TRP}{100} \right) \times ROA \times \left( 1 + \frac{LC}{EC} \times \left( 1 - \frac{RC}{ROA} \times \left( 1 - \frac{TRP}{100} \right) \right) \right)
\]

(5)

where RefR is the refinancing rate of the Central Bank of Kazakhstan, %;
TRP-income tax rate, %;
ROA-return on assets, %;
RC-the rate level for the loan, % (for the DUO);
LC/EC - share of borrowed capital, tenths.
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