Borrowed Capital as Risk Factor for Large Construction Companies in Russia

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Abstract. The paper investigates the features of the formation of the capital structure of large construction companies from the standpoint of the financial risks and opportunities for companies’ development. The authors compare the opportunities and risks linked with the use of the own and borrowed capital, analyze the capital structure of large Russian construction companies, identify factors affecting the capital structure and determining the ratio of own and borrowed sources of financing. In the paper the hypothesis is considered that companies use larger volumes of borrowed capital by means of their assets increase.

1. Introduction

The construction industry is one of the system-forming industries in the contemporary world. Its activity, on the one hand, largely determines the level of development of society and its productive forces and, on the other hand, reflects the features of the social and economic situation. The success of the economic activity of construction companies is ensured by the effective use of capital formed from the own and borrowed sources having different costs. The structure of capital directly affects the financial performance of the company and the effectiveness of its operation.

The construction is an industry of high risk. Its operation is accompanied by specific risk manifestations, for example, exceeding real costs over the approved estimate, violation of the deadlines for completing the facilities. Risks arising in the operation activity of construction companies affect their financial position. In this regard, the rational use of borrowed capital becomes one of the topical problems of construction companies.

In the Russian economy the construction industry is currently one of the key industries addressed the challenges of improving socio-economic development in the regions and the country as a whole, so the study of its development and risks is topical and up to date. The basis of the construction industry is formed by large companies.

The objective of the research is to reveal the relation of the development of the Russian construction companies and the risks generating by borrowed capital, raised for this purpose.

To achieve the objective the following tasks were set:

- analysis of sources of debt capital and their availability;
- analysis of capital structure of large construction companies;
- identification of the relationship between the use of borrowed capital and the operation scale of companies.
The key hypothesis of the study assumes that large construction companies, increasing in assets, raise borrowed capital, taking this way the correspondent types of financial risk and getting development opportunities, and larger companies have and use in fact more ways for raising borrowed capital.

2. Literature review
The task of forming and adjusting the capital structure of an enterprise is an enduring object of intensive discussions of economists in the field of corporate finance. The epochal works of F. Modigliani and M. Miller [1, 2] became an impulse for the emergence and development of alternative theories and a number of empirical studies on the capital structure. Not surprisingly, among the many scientific directions of financial management, the theory of capital structure has become one of the most controversial topics of corporate finance, both on the theoretical and on the empirical level.

The first empirical studies are presented in the works of Beaver [3] and Altman [4], where factor estimation methods are applied and calculation of the weight coefficients for each factor used is undertaken. These models are widely used and adapted in the Russian practice to assess the probability of bankruptcy. Modern foreign studies in this field include the works of Leland [5] and Toft [6], in which the authors investigated the optimal structure of capital. The works of Westgard and Van der Wijst [7], Viral [8], Rangarajan [9] and Kose [10] also belong to this topic, the mentioned authors have developed various modifications of the Altman model.

According to the joint work of M. Albert, F. Hedouri and M.H. Meskon "Fundamentals of Management" [11] the management functions are the basis for the formation of the capital structure. They determine the essence and content of management activities at all levels and stages of management. Without knowing this, it is impossible to determine the reserves and capabilities of the management activity, and it is impossible to evaluate its effectiveness.

The process of capital formation is also considered in the works of many Russian scientists, including, V.V. Kovalev [12], L.G. Kolpina [13], A.A. Anisin [14], I.D. Anikina [15], E.S. Chuvakova [16], I.T. Abdukarimov [17], E.P. Kopteva [18], G.N. Ronova [19], A.I. Romashova [19] and others. For example, G. N. Ronova in her article "Effective use of debt capital and its impact on the financial condition of the enterprise" [19] argues that effective borrowing helps to reduce costs and increase profits from the use of capital.

As for other researchers, V.I. Mamishev in his work "Capital structure and its impact on the company's value" analyzes theoretical and practical approaches to increasing the competitiveness of the company on the basis of its own and borrowed funds. He is convinced that the financial leverage has a significant impact on the company's financial stability [20]. Research of E.A. Nikitina [21] in the article "To the issue of the management of own and borrowed financial resources of organizations" is connected with generalization of theoretical approaches to determining the essence of the financial resources of a commercial organization, and with investigation of the evaluation and management methods for capital sources.

3. Data and method
The specificity of the construction industry in Russia compared with European countries is determined by its significant regional differentiation - geographic, demographic and economic. That is why continuous monitoring, analysis of changes in the main indicators characterizing the growth or decline in construction volume, changes in supply and demand in a certain territory, is the main task for the relevant federal, municipal and local authorities. An important task, too, is to determine the relationship between the indicators of construction industry and investment activities.

The development of the construction industry as one of the most profitable in the last twenty years has led to the appearance of many large companies. These organizations build residential and industrial complexes, trade and storage facilities, build and repair roads and other transport objects. Most part of the construction market is occupied by about 200 largest companies, which offer the most
competitive cost of work and guarantee the reliability, convenience and durability of the delivered facilities.

According to data for 2015 the construction industry of Russia employs more than 5.7 million people, which is 8.4% of the total working population. The state of this industry largely determines the level of development of the society and its productive forces.

When buying an apartment in a new building, it is especially important to choose a reliable developer. One of the main questions in this situation is whether the company will complete the house qualitatively and on time. It is reasonable to assume that the answer depends on the sources of the project's financing – the own funds of the developer or borrowed funds.

To begin with, it is worth investigating which options for attracting funding are possible.

Any company, especially actively developing, has the need to attract financial resources. The formation of the total company’s capital occurs using both its own (internal) and borrowed (external) sources (Figure 1).

![Structure of the organization's own and borrowed funds.](image)

The structure of the company’s capital includes a complex of components having different nature of formation, and, accordingly, certain nature and level of risks that should be taken into account for the competent management of the company’s financial resources.

The use of borrowed funds allows companies to implement timely profitable transactions or launch a new projects, thereby multiplying their own funds and increasing the return on the own capital.

Forming the capital of a company in the construction industry, it is necessary to take into account the main features of each its component. For example, the own capital has the following peculiarities:

1. Simplicity of raising funds. This is due to the fact that decisions on changes in equity are made by managers and / or founders of a construction company without the need to obtain the consent of other economic entities.

2. High rate of return on invested capital, since loan interest is not required.

3. Reducing the risk of bankruptcy and provision of company’s financial stability.

However, there are drawbacks of own capital, including:

- The limited volume of the funds for raising, and, consequently, the limitation of opportunities for a rapid activity expansion as response to increase of the market demand.

- The unused growth opportunity of own capital profitability due to operation of borrowed capital.

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Figure 1. Structure of the organization's own and borrowed funds.
All the foregoing, allows concluding that with the use of exclusively own capital, the construction company will be in the highest financial stability, however, this factor restrains the growth of profits on invested own capital due to limited ability to expand economic activity, and, consequently, limits the company’s growth.

The positive characteristics of borrowed capital include the following:
1. Wide opportunities of raising funds (especially if a pledge or guarantee is available);
2. The growth of the company’s financial potential due to the possibility of a significant and relatively rapid expansion of economic activity;
3. Use of borrowed capital can increase in the profitability of the own capital.

The disadvantages of using borrowed capital include:
1. The difficulty of raising funds. The decision to raise borrowed funds is taken by at least two business entities - the lender and the borrower.
2. As the rule, obligation of third-party guarantees or collateral. Guarantees are usually provided on a fee basis and require an audit of the economic activities and financial condition of the company.
3. Decrease in the level of own capital profitability due to obligation to pay accrued interest for use of borrowed funds.
4. The growth of the bankruptcy risk due to a decrease in the level of financial stability of the company.

It follows from the foregoing that the use of borrowed capital for the construction industry enterprises can be more profitable from the point of view of development and possible growth of profitability, however, at the same time, this leads to a decrease in financial stability. With the use of own funds, the company is free from the interest payments on loans, which may be quite big. Without credit load the company gets opportunity to build flexible development policy regarding projects and sales, responding the demand changes. However, as the rule, it is impossible to implement large-scale projects without borrowing.

The large construction companies were selected using the Network Information resource SPARK - a system of risk analysis,

The selection of companies was carried out in two stages:
- Preliminary selection of companies by the criteria of belonging to the construction industry and the size of the company – number of employee more than 250, revenue more than 1 billion rubles. The choice was executed by data of 2015.
- Drawing up a more exact list of companies: at this stage, the companies, having negative values of own capital, were excluded. As a result, the list was reduced to 343 companies.

The construction market of Russia is formed by companies representing different regions. Geographical allocation of the selected companies is shown in the Figure 2. Most of the large companies are situated in Moscow, as well as in the Volga and Urals federal districts. The number of the companies in the Central and North-Western FDs includes those of Moscow and Saint-Petersburg correspondently.

From the companies' reports, for the year 2015 the data on net profit, revenue, assets and liabilities, represented with the accuracy to one ruble, were collected.
4. Key results

The assets of chosen companies vary from 172,276 mlr. rubles to 236,150,832 mlr. rubles, i.e. differ more than 1370 times. The volume of borrowed capital is in the range from 77,316 mlr. rubles to 209,833,577 mlr. rubles, i.e. the difference is more than 2700 times. The preliminary analysis of the capital structure of the chosen companies allowed revealing that most of the companies use borrowed capital, and its share in the total capital is over 60% on average.

Companies should choose the capital structure according their own financial strategies. Raising borrowed capital is a common practice of construction companies. For example, in the Triumph Park project of Mirland Development Corporation, the share of borrowed funds is 70%, the share of own funds of the developer is only 30%. In the projects of UNISTO Petrostal, the borrowed funds constitute about 30% in the structure of financing. An important matter is the rational use of all sources of financing, since excessive credit can impact the company's operation negatively. There are also completely opposite examples. Thus, Polis Group Company does not use bank lending and conducts construction only by its own resources.

On the example of selected construction companies, the hypothesis of this study was tested: the increase in assets entails an increase in borrowed capital, i.e. larger companies use larger amounts of borrowed capital.

Correlation and regression analysis gave the results shown in the Table 1, 2 and Figure 3.
Table 1. Results of calculating the parameters of the linear regression

|                        | Coefficients | Std.Err. of B | t-statistics | P-level |
|------------------------|--------------|---------------|--------------|---------|
| Y-intersection         | -465,188,755,3 | 199,033,407,6 | -2,337,239,566 | 0,020004915 |
| Variable X1            | 0,920,115,232 | 0,006,045,501 | 152,198,334,8 | 0       |

Table 1. Regression statistics.

| Regression statistics |                      |
|-----------------------|----------------------|
| Multiple R            | 0,992719827          |
| R -square             | 0,985492654          |
| Normalized R-square   | 0,98545011           |
| Standard Error        | 341,448,6469         |
| Observations          | 343                  |

The significance of the coefficients is verified by the Fisher criterion. In our case, \( F_{\text{fact}} = 23164.33 \), and \( F_{\text{table}} = 3.89 \). Thus, \( F_{\text{fact}} \geq F_{\text{table}} \), which indicates significance of the identified relation.

As can be seen from Fig. 4, the determination coefficient is quite high, so it can be concluded that the significant positive relation between the assets and the borrowed capital takes place and the hypothesis gets confirmation.

The results of detailed examining of borrowed capital and the assets of the companies under consideration are shown in Fig. 5. On the base of correlation field the linear regression equation presented below, was obtained:

\[
y = -465,188,755 + 0.92016x
\]

Analyzing the Figure 3 and the formula, we can say that with the increase in assets there is a proportional increase in borrowed capital. By the location of the points on the correlation field, we can speak of a close direct relationship between the features being studied. This conclusion is confirmed by the obtained values of the correlation indices: \( r^2 = 0.9855 \), \( r = 0.9927 \).

5. Conclusions

A competent choice of sources of financing large construction companies, as well as the correct formation of their ratio, taking into account both internal and external conditions, can allow maximizing the efficiency of capital use, maintaining long-term financial sustainability and reducing financial risks and agency costs linked with the interaction of construction company’s stakeholders. In the framework of current study, a hypothesis has been proved that the assets growth of the large construction companies is accompanied by the increase of borrowed capital. This is connected with the limited volume of available own capital and, consequently, the limitation of opportunities for a rapid expansion of construction activity as a response to high market demand. The generalization of results characterizing the use of borrowed sources of Russian construction companies demonstrates the need to increase attention to its efficiency in further research.

References

[1] Modigliani F and Miller M H 1958 The cost of capital, corporation finance and the theory of investment *The American economic review* 48(3) pp 261–97
[2] Modigliani F and Miller M H 1963 Corporate income taxes and the cost of capital: a correction *The American economic review* pp 433–43
[3] Beaver W H 1966 Financial ratios as predictors of failure *Journal of accounting research* pp 71–111
[4] Altman E I 1968 Financial ratios, discriminant analysis and the prediction of corporate
bankruptcy  *The journal of finance* 23(4) pp 589–609

[5] Leland H E 1994 Corporate debt value, bond covenants, and optimal capital structure  *The journal of finance* 49(4) pp 1213–52

[6] Leland H E and Toft K B 1996 Optimal capital structure, endogenous bankruptcy, and the term structure of credit spreads  *The Journal of Finance* 51(3) pp 987–1019

[7] Westgaard S and Van der Wijst N 2001 Default probabilities in a corporate bank portfolio: A logistic model approach  *European journal of operational research* 135(2) pp 338-49

[8] Viral V and Acharya V V 2003 Is the International Convergence of Capital Adequacy Regulation Desirable?  *The Journal of Finance* 58(6) pp 2745–82

[9] Rangarajan C 2000 Capital flows: Another look  *Economic and Political Weekly* pp 4421-7

[10] Acharya V V, Sundaram R K and Kose J 2004 On the Capital-Structure Implications of Bankruptcy Codes  *Journal of Finance* 52(26)

[11] Meskon M H, Albert M and Hedouri F 1993  *Fundamentals of management* (Moscow: Delo LTD) p 704

[12] Kovalev V V 2011  *Financial management: theory and practice* (Moscow: Infra-M) p 1024

[13] Kolpina L G 2010  *Finance of organizations (enterprises)* (Minsk: Vysheyshaya school) p 400

[14] Anisin A A 2009 Empirical studies of the choice of capital structure  *Human Science: Humanitarian Studies* 3 pp 61–66

[15] Anikina I D 2009 The strategy of forming the borrowed capital of companies  *Bulletin of Volgograd State University* 2(15) pp 197–203

[16] Chuvakova E S 2011 On accounting and regulatory regulation of the borrowed capital of the organization  *Vector of science TSU* 1(15) pp 291–5

[17] Abdukarimov I T and Abdukarimova L G 2013 The analysis of the condition and use of the loan (attracted) capital on the basis of accounting (financial) reports  *Social and economic phenomena and processes* 4(50) pp 9–22

[18] Kopteva E P 2011 The Enterprises Asset Management Policy: the Theory and the Methodology,  *Russian entrepreneurship* 10-2 pp 74–79

[19] Romashova A I, Morozova A E and Ronova G N 2015 Effective use of debt capital and its impact on the financial condition of the enterprise  *Economic Science Today: Theory and Practice* pp 83–7

[20] Mamishev V I 2015 Capital structure and its impact on the company's value  *Problems of modern economy* 1(53) pp 91–5

[21] Nikitina E A 2015 To the question of the management of own and borrowed financial resources organizations  *Journal of Tula state university* 1-1 pp 100–8