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Efficiency evaluation of activity of the Russian public companies in the conditions of active regulation of operating costs and external effects (shocks)

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Abstract

The author considers influences of active regulation of operating costs and negative effects (shocks) on financial policy of the Russian public companies. The Russian firms make the choice for benefit of internal financing for the purpose of increase in the corporate benefit in the conditions of external financial restrictions (sectoral sanctions). Growth of the corporate benefit leads to increment of company assets and respectively to welfare of the shareholder. The Russian public companies will review the capital structure in the conditions of growth of adjustment costs. The active policy of the Russian companies is connected with availability of sufficient size of assets which are source of mortgage providing for regulation of capital structure. Thereby, the organization solves problem of adverse selection – financing source selection taking into account its price. The companies are forced to regulate actively the capital structure in the conditions of growth of operating costs and negative shocks. Regulation of capital structure is connected with the aspiration of the company to keep part of debt for its use as financing source. Operating costs are the indicator estimating efficiency of management decisions. The Russian companies will finance the investments, first of all, by internal financing sources. Cash flows are the resource servicing the investment capital. The firms will be attracted the loan capital in the period of deficit of cash flow. The Russian companies will work in logic of precautionary motive, creating monetary stock in the conditions of shocks. The precautionary motive is the protective buffer from negative impacts from the capital markets. Low values of cash flows allow to limit the management concerning his illegal behavior – decision making in private interests.

Keywords: financial policy, adjustment costs, shock, pecking order, capital structure, debt policy, investment potential.

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1. INTRODUCTION

As noted in the Address of the President of the Russian Federation to the Federal Assembly[1], high risks remain for business, especially when it comes to long-term projects. Therefore, the priority direction for companies is the transformation of profit into investment. In the face of external financial constraints, Russians must use domestic funding as a source of capital efforts in order to enhance corporate good. Derivatives of corporate benefits increase the value of shares and the investment attractiveness of the company[2]. In turn, the growth of corporate good leads to an increase in sales through the accumulation of the company's assets[3].

The corporate good is based on the economic interest of the shareholder. Management function is down to

[1] Message from the President of the Russian Federation to the Federal Assembly of 04/21/2021. Consultant Plus. URL: https://clck.ru/UeGCk.

[2] Resolution of the Constitutional Court of the Russian Federation of February 24, 2004 No. 3-P. Consultant Plus. URL: https://clck.ru/DEJ6b.

[3] Resolution of the Fifteenth Arbitration Court of Appeal dated March 26, 2020 in case No. A53-33668 / 2019. Consultant Plus. URL: https://clck.ru/UeGPD.

taking economically sound decisions that serve the interests of shareholders. A decline in stock value can be seen as a negative consequence of the policy affecting the legal rights associated with the shares, in particular the shareholder's right to influence the company[4].

Existing studies see into a certain set of organization's characteristics that influence its financial policy without taking into account the costs of regulation and externalities (shocks).

As noted by D. Mauer and A. Triantis [Mauer, Triantis, 1994], companies that poorly manage operational risks (associated with high levels of costs) are characterized by a high level of debt burden. J. Graham [Graham, 2000] singles out the company's profitability as an important factor influencing corporate financial decisions. In other words, this indicator allows you to determine the logic of management decisions related to the financing of the company's activity. In addition, using the profitability indicator, management can regulate capital framework (accumulating profits for the subsequent repayment of debt).

K. Chang and co-authors [Chang et al., 2006] consider information asymmetry as a significant component that influences managerial decision-making associated with the source of funding. The presented indicator (information asymmetry) is the one that defines the proprietary security of the debt. A company with a high level of fixed assets has a higher debt potential (that is, the ability to repay a loan of a certain size).

A. Korteweg and O. Oztekin [Korteweg, 2010; Oztekin, 2015] investigate the impact of company size on capital framework. A large company has easier access to the debt financing market.

O. Gu and co-authors [Gu et al., 2020] assess the relationship between inflexibility (inaction on the part of management regarding the capital structure) and financial policy.

In this work, the author expands the research horizon.

The correlation between operating costs (costs of regulating the capital structure), shocks and financial policies of Russian public companies will be studied as well as evidence that Russian organizations are forced to actively regulate their capital structure in the face of rising operating costs and negative shocks will be provided. Otherwise an increase in debt burden can lead to financial instability.

In addition, we will analyze the influence of the precautionary motive hypothesis put forward by J. Keynes [Keynes, 1936, p. 403] on financial leverage.

The policy of Russian companies in terms of the active regulation of the capital structure is aimed at the ability to use debt financing without regard to the risk associated with the repayment of debt obligations (taking into account the sufficient amount of assets as collateral guarantee). As noted by D. Hackbart and T. Johnson [Hackbart, Johnson, 2015], companies that are more flexible in regulating their debt level have greater debt potential (ability to borrow).

In addition, it will be shown that a positive relationship between operating costs and financial leverage (financial policy) is associated with their activity to reduce the costs of regulating the capital structure, as well as with the search for sources of funding in response to negative shocks (external effects). Operating costs are a key performance indicator used to measure management efficiency[5].

It should be noted that a shock is understood as market fluctuations in circumstances that cannot be influenced and reasonably foreseen (negative effects or externalities).

An example of negative effects is the sectoral sanctions of the European Union against oil companies in accordance with Regulation No. 833/2014 from July 31, 2014. The sanctions are regularly extended and are still in effect[6]. First of all, we are talking about a ban on debt financing and restrictions on the participation of bonds (with a maturity of more than 30 days) in trading concerning fuel and energy companies (Rosneft, Transneft, which are presented in the study). The purpose of the introduction of sectoral sanctions is called "increased costs of Russia for its actions to undermine the territorial integrity, sovereignty and independence of Ukraine"[7]. In other words, the EU economic sanctions are an unavoidable or force majeure circumstance, since they make it impossible for a person to fulfill his contract commitments[8].

In some cases, a pandemic of coronavirus infection COVID-19, taking into account prohibitive and restrictive

[4] Case of Albert and Others v. Hungary of 07.07.2020 (Application No. 5294/14). URL: https://clck.ru/UeGgi.
[5] Order of the Federal Property Management Agency of March 10, 2016 No. 90 "On Approval of the Methodological Guidelines for the Calculation of Cost Reduction by Joint-Stock Companies, the State's Share in the Authorized Capital of which is more than 50 percent." Consultant Plus. URL: https://clck.ru/UeJEE.
[6] Resolution of the Ninth Arbitration Court of Appeal dated 02.03.2021 in case No. A40-14071 / 2020. Consultant Plus. URL: https://clck.ru/UeJLr.
[7] Resolution of the Ninth Arbitration Court of Appeal dated 03.11.2020 in case No. A40-97367 / 2019. Consultant Plus. URL: https://clck.ru/UeJUJ.
[8] Resolution of the Arbitration Court of the Moscow District of 10.11.2020 in case No. A40-46243 / 2019. Consultant Plus. URL: https://clck.ru/UeJZV.

Table 1
Descriptive statistics

Variable	Average	Standard deviation	Minimum value	Maximum value
Financial leverage	0.579	0.228	0.16	1.00
Operational costs	0.859	0.114	0.46	1.12
Shock	10.670	16.698	–57.4	58.50
Tangible assets	0.472	0.257	0.02	0.89
Tobin's *Q*	1.969	2.707	0.16	12.50
Investements	0.073	0.038	0	0.17
Cash flow	0.101	0.097	–0.28	0.38

measures by the state, may also be a force majeure circumstance, since it affects the unstable situation in the economy, the decline in the purchasing power of the population[9].

Russian public companies will finance their investments primarily from internal funds (cash flows from operating activities – resources that are available to service investment capital, that is, the total amount of equity and borrowed capital). In the context of time gaps for cash flows for making a profit from the main type of activity they will attract borrowed sources of financing[10].

In the face of negative shocks, Russian public companies will act in the logic of a precautionary motive. According to the hypothesis of a precautionary motive, in order to avoid unforeseen circumstances that require sudden spending, it is necessary to form a cash reserve, which will be a protection against negative influences from external capital markets.

In the presence of a cash flow deficit, shareholders, as a rule, in order to cover this deficit, make a decision to attract debt financing.

2. METHODOLOGY OF THE STUDY AND DESCRIPTION OF THE SAMPLING

In order to identify the impact of operating costs (costs of regulating the capital structure), a shock on financial policy, 24 public Russian companies from 10 sectors of the economy were selected: agriculture (production, processing and sale of agricultural products), oil and gas complex (oil and gas industry), food industry (production and processing of poultry meat, pork and mixed feed), ferrous and non-ferrous metallurgy, mechanical engineering (production of parts and accessories for cars and engines), electric power industry, construction (general construction works), trade (retail trade in food and non-food products), transport (transportation by pipes, sea transport), telecommunications (communication services). The sample included public Russian companies with a total income of more than 10 billion RUB.[11] The selection criterion was the availability of reporting in accordance with international financial reporting standards. The company's shares must be traded on the stock market. Information about Russian organizations was obtained from annual financial statements, reports of issuers, as well as data on corporate websites. The sampling period is 2016-2020. The number of observations for each company varies (for some companies – 2017–2020, for others – 2016–2019), so the data is unbalanced. Econometric calculations were performed by Stata statistical package.

3. DESCRIPTION OF VARIABLES

When evaluating the regression model, the dependent variable (explained variable) was used – financial

[9] Resolution of the Sixth Arbitration Court of Appeal dated December 17, 2020 in case No. A73-12223 / 2020. Consultant Plus. URL: https://clck.ru/UeJhu.
[10] Letter of the Ministry of Finance of Russia dated 05.09.2017 No. 03-08-05 / 56927. Consultant Plus. URL: https://clck.ru/UeJpN.
[11] Order of the Federal Tax Service of Russia dated May 16, 2007 No. MM-3-06 / 308 @. Consultant Plus. URL: https://clck.ru/DELZD.

leverage (the company's financial policy indicator). In addition, this variable allows us to assess the features of the regulation of the capital structure.

As independent (explanatory) variables we selected: tangibility of assets, Tobin's Q, investments, cash flow from operating activities. These explanatory variables were borrowed from [Frank, Goyal, 2003, Gu et al., 2020].

In addition, the model includes two independent variables - indicators of operating costs and shock.

Financial leverage (Lev) is defined as the ratio of total debt to total assets. The indicator determines the company's financing policy.

Operating costs (Oper_Costs) are calculated as the ratio of operating costs (including cost of sales, selling and administrative expenses) to revenue. The indicator makes it possible to assess the activity and effectiveness of the company's management in the context of adjusting the regulatory costs associated with the capital structure.

Shock is the ratio of profit after tax to market capitalization *(Shock)* Shock (negative effects – externalities) is a guideline for choosing a source of funding, taking into account the costs of regulating the capital structure.

Asset tangibility (PPE/A) is calculated as the ratio of fixed assets to total assets. The indicator is associated with information asymmetry and allows you to choose a source of funding, taking into account its price. It characterizes the property security of the company when turning to debt financing.

Tobin's Q is an indicator that assesses the investment potential of a company and is calculated as the ratio of market capitalization to the cost of equity capital according to balance sheet valuation.

Investments (Invest) – the ratio of the acquisition of fixed assets and intangible assets to the total value of assets.

Cash flow (Cash_Flow) is defined as the ratio of cash flow from operating activities to total assets. The indicator assesses the company's resources required to finance investments.

All independent variables are lagged. The lag takes one year.

Descriptive statistics are presented in table. 1. On average, the capital structure of a Russian public company consists of 58% of debt financing and 42% of equity. For every ruble of revenue, on average, 86 kopecks are accounted for operating costs. The average value of the shock is 10.7% of the market value of assets. For every ruble of assets, on average, there are 7 kopecks of investments. On average, every ruble of total assets accounts for 10 kopecks of cash flow from operating activities.

4. EVALUATION AND MODEL ANALYSIS

We single out a regression model that estimates the impact of operating costs, shock and other characteristics of a company on financial policy:

$$Lev_t = a_0 + a_1(Oper\_Costs)_{t-1} + a_2(Shock)_{t-1} + a_3(PPE/A)_{t-1} + \\ + a_4(Tobin's\ Q)_{t-1} + a_5(Invest)_{t-1} + a_6(Cash\_Flow)_{t-1} + \varepsilon_t,$$

where is t – the time period for the company, a_0 – is the free term of the regression equation, a_1, a_2, a_3, a_3, a_4, a_5, a_6 – are the regression coefficients, ε – is the error of the regression equation.

In order to improve the forecast accuracy, the regression model was tested for the insignificance of the specification, autocorrelation of residuals, heteroscedasticity, and for the presence of multicollinearity (model robustness).

To test the hypothesis about the insignificance of the regression in general (i.e. , the hypothesis about zero values of the coefficients for the explanatory variables *Oper_Costs*, *Shock*, *PPE/A*, *Tobin's Q*, *Invest*, *Cash_Flow*) we used the Wald criterion based on the *Wald* = *qF*, statistic, where F – is the usual F-statistic for testing the hypothesis, and q – the number of linear constraints on the parameters of the model (q = 6). The Wald test statistic has an asymptotic chi-square distribution with q degrees of freedom. Based on the asymptotic distribution, the observed significance level corresponds to the observed value of 26.87, equal to *Prob* > *chi*2 = 0.000, so the hypothesis of zero values of the coefficients for the explanatory variables is rejected. The obtained results characterize the high statistical significance of the coefficient estimations.

The test for autocorrelation of residuals was carried out using the Dickey - Fuller criterion with a constant and a trend, taking into account the transition to the first differences. The diagnostics indicates stationarity of the time series (the significance level (MacKinnon approximate p-value for $z(t)$) for the explanatory variables is less than 5% significance level). Critical scores and test statistics reject the null hypothesis (test statistics exceeds the critical value by a 5% significance level). The hypothesis that the specification is correct should

Table 2
The model considering influence of operating costs, shock and other characteristics on financial policy of the Russian public companies

Independent variables	Coefficient	*t*-statistics	Significance level of *t*-statistics
Oper_Costs	0.420	2.16	0.033
Shock	– 0.002	–2.01	0.048
PPE/A	– 0.361	–4.17	0.000
Tobin's Q	0.042	5.70	0.000
Invest	1.271	2.51	0.014
Cash_Flow	– 0.560	–2.46	0.016
Invariable	0.290	1.46	0.149

Note. Number of observations – 86; R^2 = 67.12%; *F*-statistic = 26.87 [0.000].

be accepted. There is a long-term relationship between operating costs, shock and financial policies of Russian public companies.

The presented regression was also tested for heteroscedasticity (Brousch-Pagan test at 5% significance level). A check was carried out for the independence of the residuals from the number (moment) of observation (all independent variables). When this condition is not met, it is called heteroscedasticity. During testing, it turned out that the significance level is 70.76%, i.e. exceeds the 5 percent level. The null hypothesis of homoscedasticity is not rejected. The hypothesis of the presence of heteroscedasticity is rejected (the hypothesis of the presence of autocorrelation of residuals, leading to a decrease in the forecast accuracy, can be rejected). The regression residuals are similar to "white noise" (values at different points in time are independent and equally distributed).

Finally, a test was carried out to find the relationship between the independent variables (multicollinearity – *VIF* indicator - Variance Inflation Factor).

The model has multicollinearity if for one of the independent variables the value of the *VIF* coefficient is > 10. In our case, the largest value is significantly lower than 10 (*VIF* = 2.29), the average *VIF* value for all parameters is 1.94. There is no multicollinearity in the model (the hypothesis of multicollinearity is rejected).

A qualitative forecast can be made using the presented regression model.

The results of the regression testing are presented in table. 2.

Model considering the role of operating costs, shock and other characteristics on the financial policy of Russian public companies.

A model that takes into account the impact of operating costs, shock and other characteristics on the financial policy of Russian public companies.

All characteristics of the company are significant at the 5% significance level.

In the face of negative external shocks (externalities), Russian public companies opt for internal financing (negative relationship between shock, cash flow and financial leverage).

Management is active in regulating the capital structure (a positive relationship between operating costs and financial leverage), in particular due to the fixed adjustment costs associated with active regulation of the capital structure. The author's position is consistent with previous studies [Fischer et al., 1989; Lutsenko, 2017].

The purpose of regulation of the capital structure is associated with the desire of Russian public companies to preserve a certain part of the debt for its further use as a source of financing (negative relationship between cash flow and financial leverage). Thus, Russian organizations will operate within the logic of a conservative debt policy [Minton, Wruck, 2001].

In addition, the feedback link between cash flow and financial leverage suggests a certain limitation

on opportunistic (misconduct) behavior on the part of management, since low cash flows limit the company's management in terms of self-dealing.

The negative relationship between the tangibility of assets and the financing policy indicates a low information asymmetry in relation to property security, allowing one to overcome the problem of unfavorable selection - choosing a cheaper source of financing [Harris, Raviv, 1991].

Russian public companies will resort to debt financing if there is sufficient collateral (positive relationship between Tobin's Q and financial policy).

Russian organizations will follow the hierarchical theory of financing, referring to a cheaper source of financing (since cash flow is a resource available to finance investments).

The adjustment of the capital structure is influenced by investments and Tobin's Q indicator (a positive relationship of these indicators with financial leverage). Russian companies act in the logic of a precautionary motive, switching to internal sources of financing (saving part of the cash flow) in order to finance their investment projects in the future, taking into account their priority.

The warning motive, as noted by S. Myers and N. Majluf [Myers, Majluf, 1984], can be associated with financial instability, hence, companies save more money.

The author disagrees with the position of Gu and the co-authors (Gu et al. (2020)) that companies with low leverage do not increase it in response to negative shocks, thereby showing inaction with regard to capital structure regulation. On the contrary, companies with an increase in fixed costs (costs of regulating the capital structure) will be active in adjusting their financial policy (implementation of the recapitalization policy). We are talking about changes in the capital structure by increasing debt financing and using it as an investment (a positive relationship between operating costs, investments and financial leverage).

5. CONCLUSION

Operating costs and negative shocks make it possible to assess the effectiveness of management's activities, as well as to understand their logic in making decisions related to the financing of an organization. The management of Russian companies will finance investments following a hierarchical theory: referring primarily to a cheaper source of financing - cash flow from operating activities. Management decisions are associated with the active regulation of the capital structure. Russian companies operate in the plane of a conservative debt policy, within which the following factors are of great importance: investment potential, property security and negative shocks, and the shock indicator determines the choice of a financial source, taking into account its price. Finally, management decisions are consistent with the precautionary motive hypothesis. In the context of financial constraints and sanctions, Russian companies will seek to build up a cash reserve as a defense against negative effects (externalities).

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