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Empirical Analysis of Motives for Intra-Group Lending in Russian Business Groups

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Abstract

This study examines the factors behind the companies' financial roles on the internal capital markets of Russian business groups. The main goal is to determine the driving motives for intra-group lending in Russia. To find relevant answers, we use logit- and ordered logit-models based on 2018–2020 panel data for 239 Russian joint stock companies representing 21 business groups. Considering the findings of prior studies on debt financing in business groups, we analyze the influence of company size and age, asset tangibility and profitability, leverage, liquidity, sales growth, and the cash-flow rights of controlling shareholders on the probability of a company being a provider (receiver) of intra-group loans. The novelty of our findings is ensured by the use of data from the State Information Resource of Financial Accounts that were made publicly available in 2020, enabling us to significantly expand the set of companies under examination. The results of this empirical analysis reveal that internal capital markets of Russian business groups serve as a tool for fund reallocation from older and larger, but less capital-intensive and leveraged companies to smaller, more capital-intensive and leveraged members of the group. The findings demonstrate that the financing advantage motive for intra-group lending is currently predominant in the leading Russian business groups. Thus, Russian business groups use their internal capital markets as an alternative source of funds that alleviates the financing constraints of group members. In the context of continuing anti-Russian sanctions, the limited depth of the Russian financial market and a lack of "long" money in the economy, the research results can be useful for financial managers and policymakers seeking ways to enhance the financial security of group-affiliated companies.

Keywords: internal capital market, business group, intra-group loans, financing advantage, tunneling, financing constraints

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Introduction

Motivated by the high prevalence of business groups in developing and even developed countries, as well as by the active redistribution of capital between group-affiliated companies, research on internal capital markets of business groups in different countries and regions reveals controversial evidence on the effects of intra-group financing transactions. On the one hand, aimed at winner-picking [1] and creating co-insurance effects [2], the functioning of internal capital markets is beneficial to various types of business group stakeholders; on the other hand, internal capital markets can be engaged in the so-called 'corporate socialism' [3] or be misused by controlling shareholders to extract private benefits at the cost of other investors.

To ascertain that the bright side of internal capital markets in business groups outweighs the dark side, their inner workings have been examined through various lenses. One strand of literature focuses on the investment policies of business groups and assesses the efficiency of internal capital markets by analyzing the sensitivity of investment to cash flow in group-affiliated companies [4–7]. Another strand of literature investigates the interrelation between dividend policy decisions and reallocation of financial resources within business groups [8–10]. Equity offerings in business groups are yet another subject of growing attention [11; 12]. Finally, debt allocation across group member companies has also been examined on data from various countries [13–15]. When detectable through publicly available sources, intra-group loans are an important empirical basis for research on the functioning of internal capital markets as they do not require fair value estimations, unlike other transfers between group member companies [15, p. 2].

Russian business groups hold the leading positions in the national economy. It is widely accepted that they invariably play a predominant role in the country's economic development [16, p. 30]. Recent estimates of the volumes of financing provided to and raised from related parties by Russian public non-financial companies with shares listed in Moscow Exchange's First Tier quotation list demonstrate that internal capital markets of the leading Russian business groups are not just functioning, but are becoming more active over time [17]. Yet the exact nature and motives of these activities have remained largely unexamined up until now. We seek to fill this gap by investigating the factors behind the allocation of financial roles (providers and receivers of intra-group loans) to companies on the internal capital markets of Russian business groups.

In this study we benefit from the fact that the data from the State Information Resource of Financial Accounts maintained by the Federal Tax Service of Russia (hereinafter referred to as the FTS resource) have become publicly available in 2020. Owing to the disclosure of comparative information on the preceding periods in financial accounts, the FTS resource allowed us to collect empirical data for the years 2018–2020 for a set of 239 Russian joint stock companies. Meanwhile, the existing research on the determinants of financial roles of Russian group-affiliated companies was based on a rather limited sample of 47 companies [18].

In the context of the inability of the Russian financial market depth to fully meet the needs of the national economy [19, p. 19], the limited availability of "long" money that leads to a high cost of investment credit [20, p. 102] and ongoing anti-Russian sanctions, the research results can contribute to a deeper understanding of business groups' potential to alleviate financing constraints of affiliated companies through the groups' internal capital markets.

The remainder of the paper is organized as follows. The literature review explains the reasons to distinguish between financing advantage and tunneling motives for intra-group financing and summarizes the findings of prior research on intra-group loans. The next section presents the hypotheses of this study. The empirical part of the article first describes the methodology and data used, then the construction of the sample, and presents the results of our estimations. The final section is a summary of the key findings on the motives for intra-group loans within Russian business groups.

State of knowledge

A proper functioning of internal capital markets of business groups can help alleviate the financing constraints of group-affiliated companies [21; 22] and facilitate their investment [22–24], decrease the companies' precautionary demand for money by smoothing out liquidity fluctuations [25; 26], partly replace costly external financing with a cheaper and more flexible intra-group funding [13]. A condition required to keep internal capital markets of business groups on this bright side is related to the motivation of the groups' controlling shareholders to reallocate group capital resources. Relevant literature describes three basic motives for intra-group financial transactions, which are (1) financing advantage, (2) tunneling, and (3) propping [27, p. 766]. Out of these motives, it's the financing advantage motive that has the above-mentioned 'bright' implications for business groups. This motive implies that capital flows between group-affiliated companies are related to the differences in the degree of financing constraints that the companies face. Companies enjoying financing surpluses are prone to enter the group internal capital market as providers of funds to related parties, while companies that face financing deficits are to become the receivers of intra-group funds.

On the dark side of business groups, it is the tunneling motive for the use of internal capital markets. If we differentiate between group-affiliated companies by the cash-flow rights of their controlling shareholders (i.e., the fraction of company dividends attributable to the shareholder), tunneling implies that companies with low cash-flow rights of the controlling shareholder will act as financing donors to companies with high cash-flow rights of the controlling shareholder. Prior evidence shows that in the course of tunneling practices donor companies suffer from drops in asset profitability and share prices [28; 29], a raise in leverage aimed at boosting their donor potential [30] and, consequently, an increased risk of financial distress [15].

Prior research on intra-group lending aimed to identify its predominant motives by examining the origination and settlement of intra-group loans.

For Chinese business groups, analysis of intra-group loans on a wide sample of listed companies revealed large-scale tunneling of funds by controlling shareholders [15]. It was demonstrated that other receivables (including intra-group loans) of companies scaled by their total assets were directly traceable to controlling shareholders of these companies and were negatively related to company size and profitability, and positively related to company leverage.

For Belgian private business groups, analysis of internal debt concentration of group member companies provided evidence in support of the financing advantage motive for debt financing. The more difficulty subsidiaries faced in attracting external financing (as younger companies and/or companies with lower profitability of assets), the more intra-group loans they received [14].

For Chilean business groups, the key factors that determine the direction of intra-group credit flows proved to be leverage, profitability, and investment in property, plant, and equipment of companies. In line with the financing advantage motive, receivers were typically more capital-intensive, profitable, and leveraged [13].

For Russian business groups, a study of intra-group loan payable and receivable balances of 47 joint stock non-financial companies provided evidence that the probability of a company providing intra-group loans is positively associated with its size and negatively associated with its leverage and capital intensity, as the financing advantage motive prescribes [18]. Although that paper tried to address the gap in the understanding of intra-group financing in Russian business groups, the scope of that work, with regard to the number of companies and business groups, as well as potential determinants covered, it has left significant space for further research and led us to conduct this study.

Methodology

With regard to the financial role on the internal capital market of a business group, group-affiliated companies can be divided into providers of intra-group loans, receivers of intra-group loans, and companies with a neutral credit status. We follow the approach suggested by D. Buchuk et al., and classify a company as a provider (receiver) of intra-group loans if the company's net intra-group loans (the difference between loans receivable from related parties and loans payable to related parties) is no less (no more) than 5% (–5%) of the company's book assets [13, p. 198]. The remaining group members are characterized as companies with a neutral credit status.

We use a logit model to estimate the effect of ownership and financial variables on the probability of companies being providers (receivers) of intra-group loans. The dependent variables used for this analysis are dummy variables $RECEIVER_{it}$ ($PROVIDER_{it}$), whose value is 1 if company i is a receiver (provider) of intra-group loans at the end of year t, and 0 otherwise.

Table 1 details the approach used to calculate explanatory variables used in the empirical study.

Table 1. Description of the explanatory variables used in the study

Factor	Variable	Variable description
Position of a company in the business group	CFR – cash flow rights of the controlling shareholder	Proportional claim of the group's controlling shareholder to company dividends at the year-end [13, p. 191]
Company size	SIZE – company size	Natural logarithm of book assets at the year-end
Company age	AGE – company age	Number of years since the company's state registration
Capital intensity	TANG – assets tangibility	Ratio of property, plant, and equipment to book assets at the year-end
Profitability	ROA – return on assets	Ratio of company's net income in the year to the average of book assets during the year
Growth opportunities	SG – sales growth	Percent change in sales from prior year
Leverage	LEV – leverage	Debt-to-assets ratio (book values at the year-end)
Liquidity	CLR – current ratio	Ratio of current assets to current liabilities at the year-end
Financial assets	FA – financial assets (share of total assets)	Ratio of financial assets to book assets at the year-end
State control	STATE – state control	Dummy: 1 if the company is state-controlled and 0 otherwise

Source: Prepared by the author.

Equations (1) and (2) stand for the models to be estimated:

$$RECEIVER_{it} = F\begin{pmatrix} a\bullet CFR_{i,t-1} + b\bullet CFR_{i,t-1}\bullet STATE_{i,t-1} + \\ +c\bullet SIZE_{i,t-1} + d\bullet AGE_{i,t-1} + e\bullet TANG_{i,t-1} + \\ +f\bullet ROA_{i,t-1} + h\bullet SG_{i,t-1} + j\bullet LEV_{i,t-1} + \\ +k\bullet CLR_{i,t-1} + l\bullet FA_{i,t-1} + \varepsilon_{it} \end{pmatrix}, \quad (1)$$

$$PROVIDER_{it} = F\begin{pmatrix} a\bullet CFR_{i,t-1} + b\bullet CFR_{i,t-1}\bullet STATE_{i,t-1} + \\ +c\bullet SIZE_{i,t-1} + d\bullet AGE_{i,t-1} + e\bullet TANG_{i,t-1} + \\ +f\bullet ROA_{i,t-1} + h\bullet SG_{i,t-1} + j\bullet LEV_{i,t-1} + \\ +k\bullet CLR_{i,t-1} + l\bullet FA_{i,t-1} + \varepsilon_{it} \end{pmatrix}, \quad (2)$$

where F is the standard logistic function.

Considering there is a significant set of companies with a neutral financial role on the internal capital markets of their business groups, we also estimate an ordered logit model. The dependent variable in this model is $FINROLE_{it}$, and it assumes the value of 0 if company i at the end of year t is a receiver of intra-group loans, the value of 1 if its financial role in the internal capital market is neutral, and the value of 2 if it is a provider of intra-group loans.

The equation (3) stands for the ordered logit model:

$$FINROLE_{it} = F\begin{pmatrix} a\bullet CFR_{i,t-1} + b\bullet CFR_{i,t-1}\bullet STATE_{i,t-1} + \\ c\bullet SIZE_{i,t-1} + d\bullet AGE_{i,t-1} + e\bullet TANG_{i,t-1} + \\ +f\bullet ROA_{i,t-1} + h\bullet SG_{i,t-1} + j\bullet LEV_{i,t-1} + \\ +k\bullet CLR_{i,t-1} + l\bullet FA_{i,t-1} + \varepsilon_{it} \end{pmatrix}. \quad (3)$$

We use lagged regressor values in the models to avoid possible endogeneity issues, as a company's financial role in the internal capital market can simultaneously influence the company financial characteristics. To address potential heteroskedasticity, we use robust QML standard errors.

Development of research hypotheses

The hypotheses of this study are developed in line with the assumptions of the financing advantage motive for the use of internal capital markets of business groups.

Hypothesis 1. There is no significant correlation between the probability of being a receiver (provider) of intra-group loans and the cash-flow rights of the controlling shareholder.

Motivation. The financing advantage motive for intra-group transactions assumes that the direction of capital flows in the internal capital market of a business group is determined by the differences in financing deficits and surpluses of the group companies. At the same time, the differences in the cash-flow rights of the controlling shareholder of the group companies determine the direction of intra-group capital flows in case of tunneling.

Hypothesis 2. There is a negative (positive) correlation between the probability of being a receiver (provider) of intra-group loans and company size.

Hypothesis 3. There is a negative (positive) correlation between the probability of being a receiver (provider) of intra-group loans and company age.

Motivation. It is generally accepted that a company's access to financing expands over the company life cycle. Thus, smaller and younger (larger and older) firms are more likely to face financing deficit (surplus) and use the internal capital market of their business groups to receive funds from (provide funds to) related parties.

Hypothesis 4. There is a positive (negative) correlation between the probability of being a receiver (provider) of intra-group loans and the tangibility of company assets.

Motivation. Tangible assets can be pledged as collateral, thus, all other things being equal, companies with higher (lower) asset tangibility have easier (more difficult) access to external financing, including intra-group funds.

Hypothesis 5. There is a negative (positive) correlation between the probability of being a receiver (provider) of intra-group loans and the profitability of company assets.

Motivation. Less (more) profitable firms, all other things being equal, have smaller (larger) internal fundings and are more likely to face financing deficit (surplus), encouraging them to receive (provide) intra-group funds.

Hypothesis 6. There is a positive (negative) correlation between the probability of being a receiver (provider) of intra-group loans and company growth opportunities.

Motivation. The greater a company's growth opportunities, the more funds it needs to finance them. Thus, ceteris paribus, companies with more (fewer) growth opportunities are more (less) likely to face financing deficit that can be covered by intra-group funds.

Hypothesis 7. There is a positive (negative) correlation between the probability of being a receiver (provider) of intra-group loans and company leverage.

Motivation. According to the pecking order theory of capital structure, high leverage means that internal sources of financing are not sufficient to meet a company's funding needs, hence, the company is more likely to be financially constrained and seek intra-group loans.

Hypothesis 8. There is a negative (positive) correlation between the probability of being a receiver (provider) of intra-group loans and a company's liquidity level.

Motivation. The higher a company's level of liquidity, the less financially constrained it is, ceteris paribus, hence, the lower the probability a company becomes a receiver of intra-group loans.

Hypothesis 9. There is a negative (positive) correlation between the probability of being a receiver (provider) of intra-group loans and the share of financial assets in the total company assets.

Motivation. In non-financial companies, a high fraction of company resources available for financial investments

should mean that, all other things being equal, the company is less financially constrained, hence, it has a lower probability of becoming a receiver of intra-group loans.

Data

Since the beginning of 2020, the financial data from the FTS resource have become publicly available. It allowed us to use the data on amounts of loans receivable from related parties and loans payable to them at the end of each year from 2018 to 2020. We manually collected these data from explanatory notes on related parties included in the companies' annual financial reports under RAS. The data for the years 2016–2020 used to calculate the explanatory variables were extracted from the SPARK-Interfax database. Moreover, we used the data provided by Russian authorized corporate information disclosure agencies (lists of affiliates and issuer's quarterly reports of the companies in question) and analyzed the information available in the SPARK-Interfax database on the position of companies in ownership chains.

The set of companies with ordinary shares included in the First-Level Quotation List of Moscow Exchange as of October 1, 2021 was used as a starting point for the sample construction. From the initial set of 41 public companies, we consecutively excluded:

- 6 finance companies (PJSC VTB BANK, PJSC 'Bank 'Saint-Petersburg', Credit Bank of Moscow PJSC, Sberbank of Russia PJSC, PJSC Moscow Exchange MICEX-RTS, SFI PJSC) and 2 construction companies (LSR Group PJSC, PJSC PIK-specialized homebuilder);
- En+ Group MKPAO and United Company RUSAL MKPAO due to their redomiciliation to Russia after 2018;
- 5 companies (Detsky Mir PJSC, PJSC 'M.video', PJSC Enel Russia, Unipro PJSC, PJSC 'Magnit') whose business groups do not include any other joint stock companies (based on SPARK-Interfax 'Ownership Analysis' data service) that disclosed information on related party transactions for the years 2018–2020 in explanatory notes to financial reports.

The final sample is thus comprised of 26 public companies with ordinary shares included in the First-Level Quotation List of Moscow Exchange and 213 joint stock companies affiliated with them. The companies represent 21 Russian business groups. The sampling design and the three-year period in question (years 2018–2020) allowed to obtain a balanced panel data set of 717 firm-year observations. The years from 2017 to 2020 were used to calculate the explanatory variables for the study.

Results and discussion

Based on the ratio of net intra-group loans to book assets of a company at the year-end, we labeled each firm-year observation as a provider or a receiver of intra-group loans, or a company with a neutral credit status. 210 firm-year observations (29%) were classified as receivers, and 176 firm-year observations (25%) were classified as providers of intra-group loans. It is worth noting that the financial role of the companies on the internal capital markets of their business groups tends to be persistent over time, as it did not change for 169 companies out of 239 (71%) within the observation period.

Table 2 reports summary statistics for the explanatory variables. There are some significant outliers associated with the current ratio (the maximum value observed in the sample is 3183.7 caused by a company's refusal to use short-term loans) and with the sales growth (the maximum value observed is 396.6 caused by a low base effect). To mitigate the effects of outliers, we winsorized these variables at the top 1% of their distribution.

Table 2. Summary statistics for explanatory variables

Variable	Mean	Median	Standard deviation	Minimum	Maximum
CFR	0.857	0.957	0.183	0.213	1.000
ROA	0.040	0.028	0.181	–1.265	1.048
SIZE	15.960	15.821	2.672	6.632	23.491
TANG	0.330	0.261	0.297	0.000	0.989
CLR	11.663	1.336	121.750	0.000	3183.700
CLR (wins.)	6.756	1.336	21.736	0.000	175.410
LEV	0.232	0.069	0.452	0.000	5.148
AGE	19.343	20.500	6.665	2.000	29.500
SG	2.093	0.047	25.868	–1.000	396.640
SG (wins.)	0.312	0.047	1.489	–1.000	11.127
FA	0.207	0.026	0.299	0.000	0.9998

Notes: (Wins.) stands for a variable winsorized at the top 1% of its distribution to mitigate the effect of outliers.
Source: Author's calculations.

Table 3. Median values for explanatory variables by subsample based on companies' financial roles in internal capital markets of business groups

Subsample	Receivers	Companies with a neutral financial role	Providers
Observations, firm-year	210	331	176
Controlling shareholder's cash flow rights (CFR), %	95.30	96.10	94.90
Company size (SIZE)	16.28	15.43	15.93
Company age (AGE), years	19.50	18.00	24.00
Tangibility (TANG), %	38.60	25.40	17.70
ROA, %	1.30	2.15	6.32
Sales growth (SG), %	5.05	4.50	4.62
Leverage (LEV), %	36.22	0.00	0.00
Current ratio (CLR)	0.78	1.48	2.52
Financial assets as a share of total assets (FA), %	0.70	0.20	33.50

Source: Author's calculations.

We start our analysis by comparing the subsamples based on companies' financial roles in internal capital markets of business groups. Table 3 reports the median values of explanatory variables for providers, receivers, and companies with a neutral financial role in the internal capital market of their business group.

Comparative analysis of the subsamples shows that the median value of the controlling shareholder's cash-flow rights for receivers is slightly (0.4 p.p.) higher than for providers of intra-group loans, not giving us a reason to expect tunneling via internal capital markets. The median value of receivers' asset profitability is lower than that of other companies. Lower profitability of receivers may indicate that these companies have relatively low retained earnings, and may seem less attractive to outside investors compared with providers. The higher median value of asset tangibility of receivers indicate they are more capital-intensive than providers of intra-group loans. Receivers are also characterized by a higher median age but a lower median rate of sales growth that can indicate the predominance of growth firms among receivers and mature firms among providers of intra-group loans. Taken together, these median characteristics may indicate that receivers (providers) are prone to a financing deficit (surplus), which encourages these companies to engage in intra-group lending in accordance with the financing advantage motive.

To avoid possible multicollinearity issues in the models, we verified that the absolute values of pair correlation coefficients for the explanatory variables do not exceed 0,5 (Table 4 contains the correlation matrix). As there is no close relationship between the regressors, we consider multicollinearity risks low.

Table 4. Correlation matrix for the explanatory variables

	CFR	ROA	SIZE	TANG	CLR	LEV	AGE	SG	FA
CFR	1.0	0.0581	0.1619	–0.1383	0.0623	0.0573	–0.0236	0.0554	0.1296
ROA		1.0	0.1985	–0.0741	0.0227	–0.3899	0.1937	–0.0876	0.0221
SIZE			1.0	0.1408	–0.1027	–0.0136	0.0150	0.0701	0.2991
TANG				1.0	–0.1781	–0.0051	–0.0017	–0.0570	–0.4956
CLR					1.0	–0.1308	–0.0093	0.0870	0.0660
LEV						1.0	–0.1203	0.0644	0.0348
AGE							1.0	–0.1364	–0.0545
SG								1.0	0.1003
FA									1.0

Source: Author's calculations.

Table 5 presents logit (1, 1a, 2, 2a) and ordered logit (3, 3a) regressions.

Estimation results confirm that asset tangibility and company leverage have a positive impact on the company's probability of being a receiver of intra-group loans (Hypotheses 4 and 7). Furthermore, the results confirm the negative impact of company size on its probability of being a receiver in the internal capital market (Hypothesis 2). Hence, on average, the receivers of intra-group loans are smaller, but more capital-intensive and leveraged companies that, based on these characteristics, are more likely to be financially constrained. Providers of intra-group loans are, on average, larger, older, and less capital-intensive firms with relatively low leverage. We can interpret the positive relationship between the share of financial assets in the total assets of a company and its probability of being a provider of intra-group finds (Hypothesis 9 is confirmed by the estimation results) as evidence that Russian group-affiliated companies use intra-group loans as part of an extensive integrative growth strategy [31, p. 23].

In sum, estimation results provide evidence in support of a financing advantage motive for the use of internal capital markets in Russian business groups.

It is worth noting that only in case of state-controlled business groups there is a negative relationship between the cash-flow rights of the controlling entity and the company's probability of being a provider of intra-group funds. Though this single finding corresponds to the tunneling motive for intra-group lending, earlier we showed that providers of intra-group loans are on average more profitable than receivers. Hence, there is no convincing evidence that debt allocation across Russian group-affiliated companies cause significant damage to donor companies, as the tunneling hypothesis requires. As a result, we cannot conclude that intra-group loans serve as an instrument for tunneling in Russia.

Table 5. Logit and ordered logit regressions for receivers and providers of intra-group loans.

	(1)	(1a)	(2)	(2a)	(3)	(3a)
Dependent variable	**RECEIVER**	**RECEIVER**	**PROVIDER**	**PROVIDER**	**FINROLE**	**FINROLE**
CFR	0.8536*	0.8031	0.0081	0.0385	−0.4971	−0.4683
	(0.5154)	(0.5188)	(0.5145)	(0.5025)	(0.3744)	(0.3690)
CFR * STATE	0.3414	0.3578	−1.3295***	−1.3408***	−0.8406 ***	−0.8626 ***
	(0.2654)	(0.2606)	(0.2430)	(0.2384)	(0.2138)	(0.2062)
SIZE	−0.0878**	−0.0819**	0.0600	0.0651	0.0827 ***	0.0863 ***
	(0.0400)	(0.0384)	(0.0465)	(0.0460)	(0.0315)	(0.0312)
AGE	0.0205	0.0195	0.0432***	0.0438***	0.0104	0.0109
	(0.0167)	(0.0162)	(0.0151)	(0.0151)	(0.0113)	(0.0112)
TANG	1.1678***	1.2528***	−0.2884	−0.3260	−0.5573 **	−0.5998 **
	(0.4092)	(0.3959)	(0.4070)	(0.4135)	(0.2672)	(0.2629)
LEV	4.2030***	4.3525***	−2.5709***	−2.6208 ***	−4.1769 ***	−4.2381 ***
	(0.5120)	(0.4874)	(0.5726)	(0.5592)	(0.5312)	(0.5283)
FA	0.2363	0.2286	1.9594***	1.9375***	1.0944 ***	1.0754 ***
	(0.4665)	(0.4630)	(0.3973)	(0.3987)	(0.3496)	(0.3475)
ROA	−0.0975		0.3378		0.2865	
	(0.6657)		(0.8016)		(0.5692)	
SG (wins.)	0.0276		0.0106		0.0005	
	(0.0689)		(0.0622)		(0.0454)	
CLR (wins.)	−0.0173		−0.0000		0.0016	
	(0.0243)		(0.0036)		(0.0031)	
Constant	−2.1701***	−2.3376***	−2.3342***	−2.4019***		
	(0.7437)	(0.7235)	(0.7170)	(0.7098)		
Mean for dependent variable	0.2929	0.2929	0.2455	0.2455	0.9526	0.9526

Dependent variable	(1) RECEIVER	(1a) RECEIVER	(2) PROVIDER	(2a) PROVIDER	(3) FINROLE	(3a) FINROLE
SD of dependent variable	0.4554	0.4554	0.4307	0.4307	0.7327	0.7327
McFadden's Pseudo R-Square	0.2325	0.2283	0.1747	0.1744		
Log-Likelihood	–332.7719	–334.6094	–329.7574	–329.9147	–648.5615	–648.8245
AIC	687.5438	685/2189	681.5147	675.8294	1321.123	1315.649
Correct predictions	545 (76.0%)	547 (76.3%)	568 (79.2%)	567 (79.1%)	435 (60.7%)	434 (60.5%)
Likelihood ratio test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

* Significance at the 10% level. ** Significance at the 5% level. *** Significance at the 1% level. Standard errors in parentheses.

(wins.) stands for a variable winsorized at the top 1% of its distribution to mitigate the effect of outliers.

Source: Author's calculations.

Conclusion

Summarizing the empirical findings for 2018–2020 obtained on a set of 239 Russian joint-stock companies representing 21 business groups, the authors conclude that the direction of credit flows on the internal capital markets of Russian business groups is mostly dependent on such firm characteristics as company size and age, tangibility of assets, leverage, and share of financial assets in total assets. In line with the financing advantage hypothesis, company size has a negative impact on its probability of being a receiver of inter-group funds, while tangibility of assets and leverage have a positive impact on such a probability. The probability of a company being a provider of intra-group loans is positively related to its age and share of financial assets in the total company assets and is negatively related to company leverage. Though there is evidence that the cash-flow rights of the controlling shareholder have a negative impact on the probability of a company affiliated with a state-owned business group being a provider of intra-group loans, on average, companies providing loans to related parties still are more profitable than receivers of intra-group loans. Finally, our key results do not contradict the previous findings on intra-group lending in Russia obtained on a much more limited sample of Russian group-affiliated companies for the years 2014–2018 [18].

Thus, we can conclude that the results obtained within this empirical study show that the financing advantage motive for intra-group lending is dominant in the leading Russian business groups. In turn, it means that Russian business groups use their internal capital markets as an alternative source of funds that alleviates financing constraints of group-affiliated companies.

References

1. Stein J.C. Internal Capital Markets and the Competition for Corporate Resources. *The Journal of Finance*. 1997;52(1):111-133. DOI: 10.1111/j.1540-6261.1997.tb03810.x
2. Byun H., Choi S., Hwang L., Kim R.G. Business group affiliation, ownership structure, and the cost of debt. *Journal of Corporate Finance*. 2013;23:311–331. DOI: 10.1016/j.jcorpfin.2013.09.003
3. Scharfstein D.S., Stein J.C. The Dark Side of Internal Capital Markets: Divisional Rent-Seeking and Inefficient Investment. *The Journal of Finance*. 2000;60(6):2537-2564. DOI: https://doi.org/10.1111/0022-1082.00299
4. George R., Kabir R., Qian J. Investment–cash flow sensitivity and financing constraints: New evidence from Indian business group firms. *Journal of Multinational Financial Management*. 2011;21:69-88. DOI: 10.1016/j.mulfin.2010.12.003
5. Gupta, G., Mahakud, J. Alternative measure of financial development and investment-cash flow sensitivity: evidence from an emerging economy. *Financial Innovation*. 2019;5(1):1-28. DOI: 10.1186/s40854-018-0118-9
6. Iacobucci D. Internal Capital Market and Investment Decisions in Small and Medium-Sized Groups. In *Small Businesses in the Aftermath of the Crisis. Contributions to Economics*. Heidelberg: Physica; 2012:211-227. DOI: 10.1007/978-3-7908-2852-8_11
7. Mota J.H., dos Santos M.C. Does Internal Capital Market Membership Matter for Capital Allocation?

Theory and Evidence from the Euro Area. CICEE Working Paper No.003/2019. 2019. 53 p. DOI: 10.2139/ssrn.3530191

8. Gopalan R., Nanda V., Seru A. Internal Capital Market and Dividend Policies: Evidence From Business Groups. *The Review of Financial Studies*. 2014;27(4):1102–1142. DOI: 10.1093/rfs/hhu004
9. Gurunlu M. Propping in the Pyramidal Business Groups in Turkey. *Corporate Accounting & Finance*. 2018;29(2):114-126. DOI: 10.1002/jcaf.22329
10. Labhane N.B. Dividend Policy Decisions in India: Standalone Versus Business Group-Affiliated Firms. *Global Business Review*. 2019;20(1):133–150. DOI: 10.1177/0972150918803990
11. Bena J., Ortiz-Molina H. Pyramidal ownership and the creation of new firms. *Journal of Financial Economics*. 2013;108:798-821. DOI: 10.1016/j.jfineco.2013.01.009
12. Masulis R.W., Pham P.K., Zein J. Family Business Group Expansion Through IPOs: The Role of Internal Capital Markets in Financing Growth While Preserving Control. *Management Science*. 2020; 66(11):5191-5215. DOI: 10.1287/mnsc.2019.3418
13. Buchuk D., Larrain B., Muñoz F., Urzúa F.I. The internal capital markets of business groups: Evidence from intra-group loans. *Journal of Financial Economics*. 2014;112:190-212. DOI: 10.1016/j.jfineco.2014.01.003
14. Dewaelheyns N., Van Hulle C. Internal Capital Markets and Capital Structure: Bank Versus Internal Debt. *European Financial Management*. 2010:16(3):345-373. DOI: 10.1111/j.1468-036X.2008.00457.x
15. Jiang G., Lee C.M.C., Yue H. Tunneling through intercorporate loans: The China experience. *Journal of Financial Economics*. 2010;98:1-20. DOI: 10.1016/j.jfineco.2010.05.002
16. Russian Economy in 2018. Trends and Outlooks. Moscow: Gaidar Institute Publ.; 2019. 616 p. (in Russian)
17. Korotkova Y.I. Business groups and their internal capital markets: the foreign and Russian experience. *Moscow University Economic Bulletin*. 2021;5:72–90. (in Russian) DOI: 10.38050/01300105202154
18. Korotkova Y.I. Internal capital market efficiency of business groups. *Problems of Management Theory and Practice*. 2019;7:100-115 (in Russian).
19. Main directions of financial market development in the Russian Federation for 2022 and the period of 2023 and 2024. Moscow: Bank of Russia; 2021. 105 p. (in Russian)
20. Filatov V.I. Financial resources for the growth of the Russian economy. *Mir novoi ekonomiki = The World of New Economy*. 2021;15(2):97-106. DOI: 10.26794/2220-6469-2021-15-2-97-106
21. He J., Mao X., Rui O.M., Zha X. Business groups in China. *Journal of Corporate Finance*. 2013;22:166-192. DOI: 10.1016/j.jcorpfin.2013.05.001
22. Yeh Y.-H., Lin J.J. Investment-cash flow sensitivity to internal capital markets and shareholding structure: evidence from Taiwanese business groups. *Eurasian Business Review*. 2020;1-21. DOI: 10.1007/s40821-020-00157-7
23. Almeida H., Kim C.-S., Kim H.B. Internal Capital Markets in Business Groups: Evidence from the Asian Financial Crisis. *The Journal of Finance*. 2015;70(6):2539-2586. DOI: 10.1111/jofi.12309
24. Tan W., Ma Z. Ownership, Internal Capital Market, and Financing Costs. *Emerging Markets Finance and Trade*. 2016;52(5):1259-1278. DOI: 10.1080/1540496X.2016.1138815
25. Stiebale J., Wößner N. M&As, Investment and Financing Constraints. *International Journal of the Economics of Business*. 2020;27(1):49-92. DOI: 10.1080/13571516.2019.1653719
26. Wang Z., Wang Y. Ownership, Internal Capital Markets, and Cash Holdings, Emerging Markets. *Finance and Trade*. 2019;55(7):1656-1668. DOI: 10.1080/1540496X.2018.1553710
27. Gopalan R., Nanda V., Seru A. Affiliated firms and financial support: Evidence from Indian business groups. *Journal of Financial Economics*. 2007;86:759-795. DOI: 10.1016/j.jfineco.2006.09.008
28. Atanasov V., Bernard B., Ciccotello C., Gyoshev S. How does law affect finance? An examination of equity tunneling in Bulgaria. *Journal of Financial Economics*. 2010;96:155–173. DOI: 10.1016/j.jfineco.2009.12.005
29. Peng W.Q., Wei K.C.J., Yang Z. Tunneling or propping: Evidence from connected transactions in China. *Journal of Corporate Finance*. 2011;17:306-325. DOI: 10.1016/j.jcorpfin.2010.08.002
30. Paligorova T., Xu Z. Complex ownership and capital structure. *Journal of Corporate Finance*. 2012;18:701–716. DOI: 10.1016/j.jcorpfin.2012.05.001
31. Teplova T.V., Krylova M.S. The empirical research of the factors determining the investment activity of Russian companies. *Journal of Corporate Finance Research*. 2007;1(1):22-48 (in Russian). DOI: 10.17323/j.jcfr.2073-0438.1.1.2007

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