

Debt Source Choices and Stock Market Performance of Russian Firms during the Financial Crisis*

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Abstract

This paper examines the relationship between the source of corporate debt and stock returns during the financial crisis of 2008. In particular, using data on large publicly traded Russian firms, we investigate whether financial dependence on bank debt or bonds affected stock returns during the credit crunch. Our results indicate that the firms which rely entirely on bank debt significantly outperformed the firms with public debt amidst the crisis. This finding indicates that bank debt may be particularly valuable in harsh times. However, we also document that the stock prices of bank dependent firms recovered more slowly in the post-crisis period.

JEL classification: G01; G21; G32

Keywords: bank dependence, financial crisis, stock performance, emerging markets

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1 Introduction

It is widely believed that the financial crisis of 2008 spread to emerging economies to a large extent through the debt market. Amplified investor's risk aversion and tightened terms of foreign borrowing caused significant liquidity shock on the debt and equity markets of many countries. While there is a direct link between the shocks on suppliers of capital and its impact on their borrowers (see e.g. Chava and Purnanandam, 2011), there is relatively little empirical evidence that focuses on differences between these suppliers and examines its relation to their borrower's stock performance. The recent economic crisis reemphasized the importance of this relationship. Being able to quickly adjust their credit portfolio, firms should be capable to minimize the effect of external economic shocks by relying on the debt source that provides bigger financial slack. In this paper, we examine the association between the source of corporate debt and stock returns during the financial crisis of 2008. In particular, using data on large publicly traded Russian firms, we investigate whether financial dependence on bank debt or bonds affected stock returns during the credit crunch.

Vast majority of theory in the field points out at least three reasons for a firm to bother about its debt source choice. First, asymmetry of information between investors and shareholders might limit a firm's choice between financing sources (Leland and Pyle, 1977; Boyd and Prescott, 1986; Rajan, 1992; Johnson, 1997). Second, monitoring function of banks may reduce agency problems that arise within a company, which potentially positively affects firm returns (Diamond, 1984, 1991). Finally, it is accepted that bank debt is easier to renegotiate in harsh times (Chemmanur and Fulghieri, 1994; Rajan and Winton, 1995; Gertner and Scharfstein, 1991).

Previous empirical literature concentrates mostly on one side of the debt market - banks. Khawaja and Mian (2008); Paravisini (2008); Kroszner et al. (2007); Ongena et al. (2003) for example, examine the relationship between bank health and borrower performance. In general, these studies find close relationship between bank and firm performance during credit crunches or liquidity shocks however, only a few studies try to compare this performance to firms that rely on other sources of debt. Kang and Stulz (2000) for instance, show that bank-dependent firms performed worse than similar companies that used other means of financing during the

banking crisis in Japan in 1990-1993. Chava and Purnanandam (2011) also use the variation in stock returns across bank dependent companies and firms with access to public debt market to isolate the effect of bank loans contraction on U.S. firms in 1998. We contribute to these literature by focusing on the recent financial crisis and by extending the research on emerging markets like Russia.

There are a number of reasons why Russian market serves as an interesting setting for examining the impact of different debt providers on firm stock performance during the crisis. First, unlike crisis of 1990s for Japanese firms, the financial crisis of 2008 originated from the U.S. sub-prime mortgage sector and therefore, completely exogenous to the Russian economy. At the same time, high reliance on natural resources and free fall of main commodities' prices during the crisis as well as high integration with the western economies (Central Bank of Russia owned about 100 billion U.S. dollars of mortgage-backed securities), Russia was hardly hit. It is a fact that Russian capital market was among the worst performers in the fourth quarter of 2008. Second, although firms still mostly rely on bank debt, Russian financial system sharply differs from traditional bank-oriented economies such as Japan and Germany, while also contrasting with the U.S. or U.K. systems on the other hand. These features assure that we provide new important evidence from influential emerging market.

Our findings suggest that there was significant variation in the cross-section of stock returns of large Russian firms during the financial crisis of 2008. We exploit this variation across 102 large-capitalization Russian firms that relied either on public or bank debt. We find that the firms which rely entirely on bank debt significantly outperformed the firms with public debt amidst the crisis, while in pre-crisis period the difference in stock returns was insignificant. These results indicate that bank debt may be particularly valuable in harsh times, which is broadly consistent with the prior evidence of the value adding ability of bank debt (see e.g. Shirasu and Xu, 2007; Haan and Hinloopen, 2003; Cantillo and Wright, 2000). On the other hand, we also document that the stock prices of bank dependent firms recovered more slowly in the post-crisis period. This relationship in turn, supports the argument that public debt provides more financial flexibility in economic evolvment, while banks, requiring more risk-averse investments may alleviate firm's rate of return (see e.g. Arikawa, 2008; Weinstein and Yafeh, 1998). However, we did not find any statistically significant relationship

between debt source choices and stock returns in the post-crisis phase.

The rest of the paper is organized as follows. In Section 2 we describe the data, while Section 3 presents the empirical methodology. Section 4 reports the empirical findings on implications of debt source choices and stock market performance and Section 5 concludes the paper.

2 Data

Data required for our empirical set-up consists of: stock prices - to determine stock market performance, book values from financial statements - to account for firm-specific characteristics, and debt structure information - to identify debt source choices. We obtain accounting and stock returns data on publicly traded Russian firms from Thomson Reuters Datastream. We exclude from our sample all financial firms and utilities. To make sure that outliers are not biasing our results, we winsorize data at 1% and 99%. We also remove firms with incomplete financial data and firms that do not have information on stock returns available during three periods of our interest: *(i)* pre-crisis, *(ii)* crisis, and *(iii)* post-crisis. We define these periods based on general Russian capital market performance. Main stock indexes started to decline starkly since July 2008. The bottom of this drop was found in February 2009, while the constant growth started in April 2009. Using this information we set periods as: *(i)* June 2007 - June 2008 as pre-crisis; *(ii)* July 2008 - March 2009 - the crisis period; and *(iii)* April 2009 - April 2010 as post-crisis recovery period.

Next, we determine firms' reliance on the source of debt. We use data on corporate bonds issues from two main Russian stock exchanges (MICEX and RTS). We define a firm as relied on public debt if it had bonds issued during particular year. Further, we access quarterly reports of the remaining firms to determine whether they were dependent on bank debt. Given these information, we construct a dummy variable which takes the value of one if a firm was bank-dependent in the specified period and zero otherwise. We account for firm's possibility to switch from one source of debt to another and construct this dummy for each year separately. For instance, if a firm issues bonds in 2008 in order to repay its bank debt

that was taken in 2007, the bank-dependence dummy would be “one” in 2007 and “zero” in 2008. Thus, the same firm might be accounted for different classes of debt sources reliance in different years. In contrast to previous studies where absence of public debt ratings quite often was used as the proxy for bank dependence (see e.g. Kashyap et al., 1994; Chava and Purnanandam, 2011), our approach provides much more accurate distinction between bank dependent firms and those with public debt.

In our empirical setting firms without debt or with other than public or bank debt may potentially bias estimates since it is not clear why they have chosen not to leverage or to rely on other source of debt: due to specific information asymmetries or reasons suggested by pecking order theory or they have other private source of debt which is out of context of this research. Therefore, to avoid any potential bias, we exclude firms that were unleveraged for at least three years in a row and those that relied on neither public nor bank debt during the sample periods.

Our final sample consists of 102 individual firms. Table 1 presents summary statistics of the whole sample. The averages of book values as well as financial ratios and market characteristics are calculated across firms during the 2006 - 2010 fiscal years, while bank dependence dummy was measured during 2007 - 2010. The table shows that the average sample firm is moderately leveraged and fairly liquid. The average liquidity measured by the current ratio is 1.91, while debt-to-assets ratio is around 26%. It is also can be seen that the average firm is rather profitable having return on assets and equity of about 8% and 7% respectively. Our stock market performance measure is holding period returns during the phases specified above: *(i)* pre-crisis, *(ii)* the crisis, and *(iii)* post-crisis. As can be noted from the table, the average sample firm lost more than 50% of its equity value during the financial crisis of 2008, while gaining about 20% in pre-crisis term. However, the post-crisis phase can be trully called the recovery period since the average return was about 75%. Finally, the table shows that there are a bit more Russian firms that relied on bank debt rather than on publicly traded bonds during the sample period.

[Table 1 about here]

3 Methodology

We start empirical analysis by dividing our data sample in two parts: *(i)* bank dependent firms and *(ii)* firms with public debt. With simple univariate tests we first compare the differences in means in medians in two subsamples for the whole period, while we proceed with our analysis by comparing the averages in the first and fourth quartiles of stock return performance during the financial crisis. Next, we examine the association between debt source choices and firm stock market performance with cross-sectional regressions separately for each of three periods of our interest.

Besides our stock market performance variables - holding period returns in three different periods discussed above, we introduce several control variables. We account for differences in firm size, financial leverage, and liquidity. Firm size is measured by the natural logarithm of book value of total assets, while the current ratio serves as the proxy for liquidity. Since the degree of leverage is potentially the most important variable in our empirical set-up, we use two alternative measures for it to ensure the robustness of our estimates. Thus, the degree of financial leverage is measured by either debt-to-assets ratio, which is calculated as the book value of total debt divided by the book value of total assets, or by long-term debt-to-capital ratio, calculated as book value of long-term debt divided by the sum of common equity and total debt.

Following extensive literature on variables that are able to explain most of cross-sectional variation in stock returns, we also include market-to-book ratio and beta coefficient as additional control variables. Market-to-book is calculated as the ratio of market value of firm's equity to its book value of common equity, while beta coefficient is estimated against two major stock indexes in Russia - either MICEX Index or RTSI and includes 48 monthly return observations. We also report a proxy for profitability, measured by return on assets, in our univariate tests, but do not use it in our multivariate analysis since it should be already reflected in stock returns which are dependent variables in regressions. Hence, we examine the relationship between debt source choices and firm stock market performance with the

following cross-sectional regression specification:

$$r_{i,t} = \alpha + \beta_1 BD_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 LEV_{i,t-1} + \beta_4 MB_{i,t-1} + \beta_5 BETA_i + \sum_{k=1}^{n-1} \alpha_k INDUSTRY_i^k + \varepsilon_{i,t} \quad (1)$$

where $r_{i,t}$ denotes holding period return for firm i at time t (at pre-crisis, crisis, and post-crisis periods), $BD_{i,t}$ is a dummy variable for a firm being bank dependent, $SIZE_{i,t-1}$ is the natural logarithm of total assets, $LEV_{i,t-1}$ denotes financial leverage, measured by either debt-to-assets or debt-to-capital ratio, $MB_{i,t-1}$ is the market-to-book ratio, calculated as the ratio of market value of firm's equity to its book value of common equity, $BETA$ is the beta coefficient estimated against two major stock indexes in Russia - either MICEX Index or RTSI, and $INDUSTRY$ is the statistical classification of economic activities. Control variables are one year lagged to avoid any influence of anticipated change in these variables during the test period.

In contrast to previous studies that concentrate on association between financial dependence and firm performance, our OLS results are not subject to endogeneity concerns for several reasons. First, we are not focusing on relationship between bank health and firm performance, rather examining the difference in stock performance of firms with various debt sources. Second, the issue of reverse causality in the regression equation described above is not relevant, since we are using data on the largest publicly traded Russian firms which all would be desirable clients for banks. To ensure robustness in this issue, we regress stock returns on one year lagged firm characteristics. Third, we can argue that unobservable variables do not affect our estimates as if these residuals would be important we should not expect firms that were hit the hardest by the crisis to recover faster than their peers that were hit the least. However, as described in the following section, this is exactly what we observe. Finally, the nature of the financial crisis of 2008 generated completely exogenous shocks to emerging economies. Both financial institutions and the real sector faced difficulties with credit crunch and lost of liquidity. Therefore, in contrast to U.S. where the problems in financial sector caused recession to the whole economy, there was no causal effect in the Russian economy, where both financial and real sector experienced common economic shock.

4 Results

We begin our analysis with simple univariate tests. Table 2 compares firm characteristics as well as distribution of returns across bank dependent and bank independent firms, that are firms that rely on bank debt and those with public debt. The differences in means and medians are tested with a simple two-tailed t-test and with the Wilcoxon/Mann-Whitney test, respectively.

[Table 2 about here]

As can be noted from the table, the difference in stock returns (both in mean and median) during the pre-crisis phase (i.e. from June 2007 to June 2008) across two sub-samples was statistically insignificant. Nevertheless, we observe large differences in means and medians during the crisis (July 2008 - March 2009) and post-crisis (April 2009 - April 2010) periods. These differences indicate that bank dependent firms suffered much less of their equity value loss during the crisis period. The mean holding period return for bank dependent firm was -42.3%, while the corresponding number for bank independent firm was -64.6%. However, the corresponding figures for the post-crisis period were 54.97% for bank dependent and 104.4% for bank independent firms, implying that firms with public debt recovered more quickly from the crisis shocks. These results provide solid evidence of stock price performance differences in two subsamples during the crisis and post-crisis periods as all differences in means and medians are highly significant at the 1% level.

Table 2 also shows that bank independent firms are slightly larger based on assets and more risky based on beta coefficient, than firms with bank debt. The differences in means and medians of these variables are highly significant at the 1% level. We did not find any significant difference in profitability (ROA), liquidity (current ratio) or market-to-book ratio, but overall, these results indicate that stock price performance may be affected by firm-specific characteristics, hence it is crucial to control for these variables in regression analysis.

We proceed with comparison of firm characteristics in two sub-samples by looking at top best and top worst return performers during the crisis period. Table 3 reports summary

statistics for firms in the first and fourth quartiles of stock return performance during July 2008 - March 2009.

[Table 3 about here]

As shown in the table, the difference in averages between these two groups is highly significant for each variable, except of liquidity measure. Moreover, the difference in average returns during three periods of interest is extremely large. Thus, the worst performing firms lost about 82% of their value during the crisis, while the top performers suffered just about 8% loss. Interestingly, however, the firms that performed poorly during the crisis significantly outperformed best performers in pre- and post-crisis periods. The differences in average returns in these two periods were 20.5% and almost 130%, respectively.

We also observe that worst performers are slightly larger based on assets, more leveraged based on debt-to-assets ratio, and riskier according to beta coefficient, however less profitable and have slightly lower market-to-book ratio. The differences in these variables is significant at the conventional levels. Finally, Table 3 also shows that there were more bank dependent firms in the top quartile of returns distribution. The mean for dummy variable that proxies for presence of bank debt in firms capital structure was 0.79 in top performers group, while only 0.29 in worst performing sample.

Overall, the comparisons made in tables 2 and 3 imply that bank dependent firms significantly outperformed the firms with public debt amidst the crisis, while being smaller, less leveraged and less risky. On the other hand, firms with public debt lost the most of its value during the crisis nevertheless, recovered more quickly in the post-crisis period than their peers that relied on bank debt. Figure 1 illustrates these results. Plot (a) presents cumulative logarithmic returns for two portfolios - (i) with bank dependent firms, and (ii) with firms that relied on public debt. It is noticeable that the drop in the last portfolio's value was sharper during the crisis however, it recovered faster and in the first quarter of 2010 it was outperforming portfolio with bank dependent firms. Plot (b) in turn, presents holding period returns for the same portfolios starting from January 2007. Again we note that the portfolio with firms with public debt experienced larger losses during the crisis nevertheless,

it regained its value by the second quarter of 2009, significantly outperforming portfolio with bank dependent firms.

[Figure 1 about here]

The limitation of univariate analysis is that many of presented variables are correlated and therefore, do not provide evidence of causal relationship. To evaluate the association between debt source choices and stock market performance we run multivariate cross-sectional regression analysis. Table 4 reports the regression results of Equation 1 estimated for three periods separately: (i) pre-crisis period - June 2007-June 2008; (ii) crisis period - July 2008-March 2009; and (iii) post-crisis, recovery period - April 2009-April 2010.

[Table 4 about here]

As can be noted from Table 4, the estimated coefficients for bank dependence are positive and statistically significant at the 10% and 1% levels in the pre- and the crisis periods, while this relationship changes in the pos-crisis period but is not statistically significant. Thus, the bank dependent firms experienced about 32% higher returns than those which relied on public debt in pre-crisis period and roughly 20% higher returns during the crisis. The adjusted R-squared in regression specifications varies between 14% and 60%. Hence, these results provide strong evidence to suggest that the reliance on bank debt was positively associated with stock returns before and amidst the crisis.

In our approach it is important to account for industry affiliation since some firms might potentially cluster in industries with more cyclicity or macroeconomic sensitivity. Therefore, we add industry controls in each regression. The significance of estimated coefficients for other control variables varies across periods. Thus, we find that the degree of financial leverage is negatively associated with returns in the crisis phase.¹ Beta coefficient has negative and statistically significant relationship with stock returns in the crisis, while it is positively related in the recovery phase and significant at the 10%.² Market-to-book ratio is positively and

¹We use two alternative measures of leverage - debt-to-assets and long-term debt-to-capital, as the results for these two measures were similar, we report only estimates for debt-to-assets ratio due to space limits.

²We use two alternative betas estimated against either MICEX index or RTS index. Since the results were identical, we report the estimation results only for MICEX beta due to the same reasons as above.

statistically significantly associated with stock returns during the crisis while this relationship appeared to be insignificant in other periods.

Overall, our results from multivariate analysis indicate that firms were able to minimize the effect of the financial crisis of 2008 by relying on bank debt, while firms with public debt were hit the hardest. One potential explanation for such relationship between debt source choices and stock returns could be in unique nature of bank debt. The ability of banks to construct credit lines, drawdowns on which can be stretched along multiple periods, allowed corporate borrowers to get larger financial slack in harsh times. Such explanation is supported by statistics of commercial loans by Russian banks, which is presented in Figure 2.

[Figure 2 about here]

As shown in the figure, the amount of mid-term loans to corporations was raising sharply from July 2008 to February 2009, indicating that firms were increasing their borrowing from banks during the whole crisis period. The total amount of given out loans increased by roughly one third during the financial crisis of 2008, while it is noticeable that this amount was decreasing slightly during the recovery period.

5 Conclusions

In this paper, we examine the association between the source of corporate debt and stock returns during the financial crisis of 2008. In particular, using data on large publicly traded Russian firms, we investigate whether financial dependence on bank debt or bonds affected stock returns during the credit crunch.

Our findings suggest that the firms which rely entirely on bank debt significantly outperformed the firms with public debt amidst the crisis, while in pre-crisis period the difference in stock returns was insignificant. These results are broadly consistent with the prior evidence on the value adding ability of bank debt (see e.g. Shirasu and Xu, 2007; Haan and Hinloopen, 2003; Cantillo and Wright, 2000). These findings from emerging Russian market are also consistent with the evidence from developed markets, where it was found that public firms with

no or weak bank relationships experienced larger credit crunch in 2008 (Allen and Paligorova, 2011).

One potential explanation for such relationship between debt source choices and stock returns could be in banks' abilities to provide credit lines to their borrower, drawdowns on which can be stretched along multiple periods. The statistics on commercial loans by Russian banks support this argument. Moreover, there is an evidence that commercial and industrial loans rose during the crisis peak in the developed markets as well. And this rise was driven solely by increased drawdowns by corporate borrowers on existing credit lines (Ivashina and Scharfstein, 2010).

We also document that the stock prices of bank dependent firms recovered more slowly in the post-crisis period. This finding in turn, supports the argument that public debt provides more financial flexibility in economic evolvment, while banks, requiring more risk-averse investments may alleviate firm's rate of return (see e.g. Arikawa, 2008; Weinstein and Yafeh, 1998). However, we did not find any statistically significant relationship between debt source choices and stock returns in the post-crisis phase. Overall, our results demonstrate that bank debt may be particularly valuable in harsh times.

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Table 1. Summary statistics.

The table reports descriptive statistics on 102 large-capitalization firms. Stock returns are calculated as the holding period returns for three points in time: June 2007 - June 2008, July 2008 - March 2009, and April 2009 - April 2010. Liquidity is presented by the current ratio and calculated as current assets divided by current liabilities. Debt-to-assets and LT debt-to-capital measured as total debt divided by the book value of total assets and long-term debt by the sum of common equity and total debt correspondingly. ROA (ROE) is net income divided by book assets (equity). Market-to-book ratio is calculated as the ratio of market value of firm's equity to its book value of common equity, while beta coefficient is estimated against MICEX Index and includes 48 monthly return observations. Averages of firm characteristics are computed during 2006-2010.

Variable	Mean	Median	Min	Max	Standard Deviation
<i>Stock returns:</i>					
June 2007 - June 2008	20.55	1.93	-62.50	378.5	70.79
July 2008 - March 2009	-50.84	-57.7	-100.0	76.47	30.73
April 2009 - April 2010	74.95	67.8	-72.73	382.9	91.79
<i>Firm characteristics:</i>					
Bank dependence	0.59	1.00	0.00	1.00	0.49
Log(Assets)	16.53	16.20	12.4	22.95	2.19
Log(Sales)	16.57	16.33	5.62	21.93	1.93
Equity (millions)	119,000	4,478	-2,405	6.25e+06	517,000
Total Debt (millions)	36,478	2,087	0.00	1.63e+06	1.55e+05
Long-term debt (millions)	24,011	596.5	0.00	1.19e+06	1.09e+05
EBIT (millions)	29,055	800.2	-45,024	1.24e+06	1.18e+05
<i>Financial ratios:</i>					
Liquidity (current ratio)	1.91	1.31	0.09	44.1	2.70
Leverage (debt-to-assets)	26.2	23.44	0.00	102	20.0
Leverage (LT debt-to-capital)	18.5	10.12	-144.4	117	24.6
ROA	7.95	6.28	-70.09	97.4	11.8
ROE	6.92	10.16	-1,586	164	82.5
<i>Market characteristics:</i>					
Market-to-book ratio	1.82	1.25	-8.20	27.36	2.43
Beta	0.46	0.44	-0.54	1.79	0.40
Std of stock returns	44.05	4.33	0.00	1,961	144,1

Table 2. Comparison of bank dependent to bank independent firms.

This table reports comparisons of means and medians of firm characteristics of two sub-samples. Bank dependent firms are firms that relied on bank debt, bank independent firms are those that relied on public debt in terms of bonds. Firm characteristics are the same as in Table 1. The averages of variables are calculated across 2007-2010. The difference in means is tested with t-test. The difference in medians is tested with Wilcoxon test. (***) denotes significance at the 1% level.

	Bank dependent firms		Bank independent firms		Difference in means	Difference in medians
	Mean	Median	Mean	Median		
	n = 62		n = 40			
Pre-crisis returns	22.44	5.05	17.63	0.68	4.80	4.37
	n = 63		n = 39			
Crisis returns	-42.3	-50.0	-64.6	-69.3	22.33***	19.29***
	n = 61		n = 41			
Post-crisis returns	54.97	40.35	104.7	100.0	-49.72***	-59.65***
Log (Assets)	15.8	15.4	17.8	17.8	-2.03***	-2.40***
ROA	6.96	5.13	7.54	6.53	-0.58	-1.41
Debt-to-assets	27.0	24.8	27.8	25.4	-0.77	-0.66
Current ratio	1.76	1.21	2.08	1.37	-0.32	-0.16
Market-to-book ratio	1.81	1.2	1.52	1.04	0.29	0.16
Beta	0.38	0.31	0.58	0.59	-0.20***	-0.28***

Table 3. Summary statistics for firms in the first and fourth quartiles of stock return performance during the financial crisis.

The table presents comparison of means of firm characteristics in the bottom quartile of stock return performance during the crisis period relative to those in the top quartile of returns distribution. Bank dependence is a dummy variable which takes the value of one if a firm was bank-dependent in the specified period and zero otherwise. Firm characteristics are calculated across 2007-2010. The difference in means is tested with t-set. (*), (**), and (***) denote significance at the 10%, 5% and 1% levels, respectively.

	Mean of firms in bottom quartile of distribution of returns	Mean of firms in top quartile of distribution of returns	Difference in means
Bank dependence	0.29	0.79	0.5***
<i>Stock returns</i>			
Pre-crisis returns	24.0	3.51	-20.50**
Crisis returns	-81.7	-7.72	73.98***
Post-crisis returns	145.6	16.15	-129.4***
<i>Firm characteristics</i>			
Log (Assets)	16.6	16.0	-0.55**
ROA	3.74	8.98	5.24***
Debt-to-assets	30.5	22.8	-7.65***
Current ratio	2.22	2.10	-0.12
Market-to-book ratio	1.36	1.87	0.51*
Beta	0.72	0.19	-0.53***

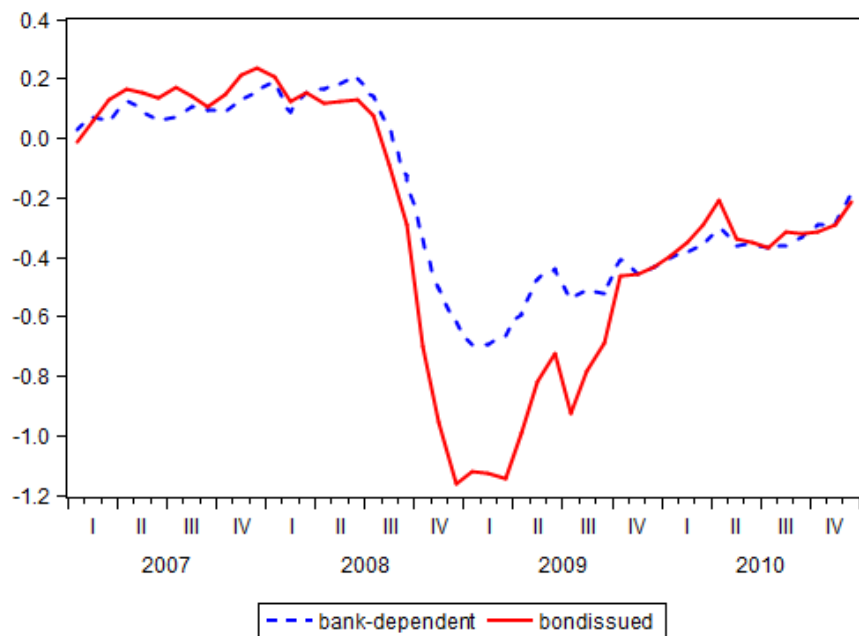
Table 4. Debt source choices and stock returns.

Estimations are based on cross-sectional regressions on 102 publicly traded large-capitalization Russian firms for three periods separately. The number of observations varies due to lack of historic data on some of the control variables. Bank dependence is a dummy variable which takes the value of one if a firm was bank-dependent in the specified period and zero otherwise. Remain independent variables are the same as in Table 1. Absolute values of t-statistics are in brackets. Standard errors in all specifications are adjusted for potential heteroskedasticity. (*), (**), and (***) denote significance at the 10%, 5% and 1% levels, respectively.

<i>Independent variable</i>	Stock returns		
	1 Pre-crisis period (June 07-June 08)	2 Crisis period (July 08-March 09)	3 Post-crisis period (April 09-April 10)
Constant	23.29 [0.23]	-76.8* [1.92]	273.8 [1.46]
Bank dependence	32.2* [1.80]	20.2*** [2.77]	-67.9 [1.61]
Assets	2.24 [0.39]	1.60 [0.70]	-13.9 [1.57]
Debt-to-assets	0.74 [1.39]	-0.4** [2.46]	0.06 [0.95]
Beta	10.13 [0.49]	-27.4*** [3.44]	68.8* [1.67]
Market to book ratio	-1.18 [0.37]	1.19** [2.00]	-6.56 [1.63]
Industry controls	Yes	Yes	Yes
Number of firms	90	102	101
Adj. R-squared	0.32	0.60	0.14

Figure 1. Portfolio returns

(a) Cumulative logarithmic returns



(b) Holding period returns

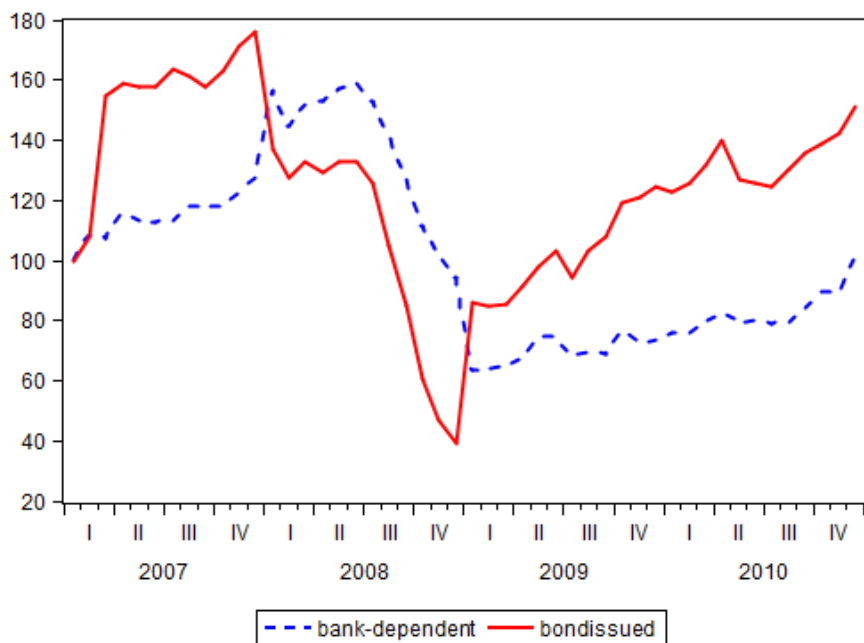


Figure 2. Statistics of commercial loans by banks

According to data on credit institutions performance by the Central Bank of Russia.

