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Maria Semenova

Save or borrow – what determines
Russian households' financial
strategies?



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All opinions expressed are those of the authors and do not necessarily reflect the views of the Bank of Finland.

Maria Semenova*

Save or borrow – what determines Russian households' financial strategies?

Abstract

This paper examines what influences Russian households' decisions to save and borrow. We use the 2008 data from the 17th round of the Russia Longitudinal Monitoring Survey (RLMS-HSE). Our results show that the determinants of saving and borrowing are not only those suggested by economic theory but also include psychological and sociological considerations: smarter respondents, who are satisfied with their lives and inclined to help other people, are more likely to save. Those who enjoy stable or improving financial conditions and/or are satisfied with them are more likely to save and less likely to borrow. Financial literacy, a factor cited by institutional theory as positive for both saving and borrowing from banks, lost its significance at the onset of the financial crisis. Household income, suggested by economic theory as a basis for choosing a financial strategy, was found to have much less influence on savings and to have a positive influence on borrowing, confirming the rationing theory rather than inter-temporal choice theory. Surprisingly, the fear of job loss does not make people save more, contrary to the precautionary motive.

JEL: D14, D91, G21

Keywords: household, Russia, saving, bank loans

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Tiivistelmä

Tutkimuksessa tarkastellaan kotitalouksien säästämiseen ja lainanottoon vaikuttavia tekijöitä Venäjällä tuoreen poikkileikkausaineiston avulla. Tulokset korostavat psykologisten ja sosiologisten tekijöiden merkitystä kotitalouksien päätöksenteossa. Elinoloihinsa tyytyväiset vastaajat säästävät muita useammin. Kotitalouksien tuloilla oli vain vähän vaikutusta säästämiseen, mutta positiivinen vaikutus lainanottoon. Vastoin odotuksia epävarmuus työpaikasta ei lisännyt kotitalouksien säästämistä.

JEL:D14, D91, G21

Asiasanat: kotitaloudet, Venäjä, säästäminen, lainanotto

1 Introduction

Consideration of what determines household financial strategies is not new in economic theory. As the OECD report (2002) suggests, "...as one of the key variables determining individual welfare and quality of life, consumption has dominated much of the microeconomic debate dating back to John Stuart Mill and the classical economists of the 18th and 19th centuries." (p.61). Two financial strategies related to consumption optimization over time are usually analyzed starting with the first models of households' inter-temporal choice. Having the possibility to store financial assets and to access the credit market, a household chooses a borrower or saver strategy.

These two strategies at least partly ensure the efficiency of banking-system transmission mechanisms. A lack of savings undermines the flow of funds into bank deposits. Low demand for bank loans and dominance of loans from private third parties reduce banks' profits and diversification possibilities even if the market is not affected by the problem of credit rationing.

In this paper we aim to determine the factors that influence Russian households' decisions on whether to save and/or borrow. In respect of those who choose one of these strategies, we analyze the determinants of exposure to the strategy, namely, the amount of funds saved or borrowed. We use the 2008 cross-section survey data from the 17th round of the Russia Longitudinal Monitoring Survey (RLMS-HSE). Because this round took place in late 2008, we also examine financial strategies at the start of the financial crisis.

According to standard inter-temporal theory, saving and borrowing depend on the household's current income, expected future income and the rate of inter-temporal preference (discount rate). The equilibrium amounts of savings and borrowing comprise the solution of a utility maximization problem with an inter-temporal budget constraint. Thus borrowing and saving serve to smoothen consumption over time. However, the literature goes beyond this theory to add other influences on household decisions as to how much to save or borrow.

Initially these factors were tested with macro-data. For example, the determinants of savings in OECD countries (1975-1995) are analyzed in Callen and Thiman (1997), who use macro-data and focus primarily on the influence of social security and welfare systems on the ratio of household savings to GDP. Besides showing that direct taxes and government transfers have negative impacts on saving, they demonstrate that income has a posi-

tive effect and unemployment a negative effect (so that no precautionary savings effect was found). Loayza et al (2000) present an overview of several studies relating to private savings in developing countries, all of which are based on macro-data. The results suggest that income has a positive effect on savings; the influence of age is U-shaped; and uncertainty (measured by inflation or urbanization variables – for rural areas the uncertainty is considered to be higher) provides additional incentive to save. An earlier paper by Schmidt-Hebbel et al (1992) presents evidence on household saving determinants in ten developing countries in 1970-1985. They find a positive influence for income but not for inflation.

However, moving from the life-cycle or permanent income hypothesis to studying the influence of personal and psychological characteristics (Thaler, 1990, 1994) as well as social and institutional factors (Han, Sherraden, 2009) complicates the empirical testing of aggregated macro-data. As suggested by Deaton (1997), Miles (1997) and many others, to probe deeper into household motivation one needs to switch from macro-level to individual-level or household-level data (surveys or personal files). This type of data enables one to control for personal, social and institutional factors. An example of such a study is Harris et al (1999), which studies the determinants of saving in Australia using household survey data and examines the risk-aversion motive for saving. These results confirm the precautionary motive, showing that respondents who are pessimistic or uncertain about future incomes save more. The authors also provide some evidence for the relative income hypothesis by showing that social factors are important and that higher relative income leads to higher savings. Webley and Nyhus (2006), using data from Dutch household surveys, demonstrate that social factors and the environment in which a person grows up strongly influence his incentive to save. For instance, parents' saving habits and living principles are statistically significant for their children's savings. Even genetic factors proved to exert an influence on financial strategies. Based on data on Swedish twins, Barnea, Cronqvist and Siegel (2010) show that even if they grow up in different environments and have different life experiences a pair of twins will have similar investment strategies. Han and Sherraden (2009) provide evidence that institutional factors may stimulate savings and that financial education/literacy is among the most important determinants of savings (at least for lower-income households in the Individual Development Account program).

There are relatively few papers that bring to light peculiarities of saving determinants in transition economies. Denizer et al (2002) analyze determinants of savings in Bul-

garia, Hungary and Poland, using survey data. They find a positive – albeit rather small – linear influence of age (in contrast to the U-shaped relationship for developed and developing countries). Employment is not highly significant, and the education of the head of household has a negative effect on the propensity to save. Kulikov et al (2007) analyze the determinants of household savings in Estonia and find some income and wealth effects, eg that higher income increases savings whereas holdings of durables and financial assets reduce them. The latter is shown to be true for Russian households by Foley and Pyle (2005) who also show that savings are sensitive to transitory income, measured as income from household production and private transfers. The savings of Russian households also seem to be based on a precautionary savings motive. The probability of the head of household being fired stimulates saving, as Guariglia and Kim (2001) show using data for 1994-2000, which was a period of political, economic and institutional instability in Russia.

One of the problems in credit markets, which pushes them away from the intertemporal choice model equilibria, is liquidity constraints due to credit rationing, as suggested by Stiglitz and Weiss (1981). Most of the papers dealing with the determinants of borrowing behavior analyze bank loans and concentrate on credit rationing factors and liquidity constraints (see Magri (2007) for an overview of this literature).

An exception is Diagne (1999), who analyses both formal and informal credit markets in Malawi, though focusing on credit constraint determinants (based on the 1995 survey of rural households participating in special microcredit programs). It is shown that formal and informal credit markets are not substitutes for each other but instead serve different purposes (investment and personal use respectively).

Also in contrast to many others, Magri (2007) clearly differentiates between demand (households willing to apply) and supply (households that apply but are rejected) factors for household debt in Italy. Using the results of household surveys, she demonstrates that age is a demand factor that increases the probability of becoming a borrower (at least up to a certain point). However, household income, which has a similar influence, seems to be a supply factor. The latter is true for the amount borrowed.

The literature on borrowing does not take account of a wide range of factors discussed in the savings literature, such as personal and psychological characteristics, self-esteem and social status, and financial literacy.

Our study adds to these two streams of literature in the following ways. First, we analyze the choice between two types of financial strategies, rather than concentrating

solely on saving or borrowing behavior. This allows us to analyze households' motivations for involvement in the financial markets.

Secondly, we go beyond income and wealth analysis, which are performed by other authors dealing with Russian data. We include households' expectations and self-esteem among the factors that may influence their choices. In fact, the household may not save and may be out of the credit market due to its own-life (dis)satisfaction or a sense of being richer or poorer than others. We also suggest that financial literacy/experience may be a factor that stimulates saving and borrowing. Households may be more involved because they know more about financial strategies themselves or have the experience of participating in the financial markets (eg Semenova (2008) suggests that Russian depositors use of payroll cards increases their probability of having a long-term deposit in a bank).

We use recent survey data for a post-Soviet country, including the period of financial crisis, 2008-2009. The propensity to save dropped significantly in 2008, from a historically stable 10 percent of total income, and rose again in 2009 to 15 percent, albeit the factors triggering the changes were ambiguous. As for the consumer loan market, the period of financial instability witnessed a drop in both demand and supply of consumer loans, which may indicate that households switched from formal to informal credit markets. However, after the crisis the banks, being willing to increase lending, may face demand problems if the market is greatly influenced by the demand-side factors and these are more fundamentally undermined by financial instability.

The survey allows one to concentrate on self-reported financial strategies. In contrast to other studies, we adopt the respondents' view of being a saver or a borrower. If there is a gap between total income and spending, this need not mean that the household is a saver. If the household does not report itself as a saver this may signal that the difference cannot be invested because it is reserved for necessary future expenditures. As for bank loans, self-reporting is the only way to reveal them, given a lack of access to private bank data.

The rest of the paper is organized as follows. Section 2 describes the data and methodology. Sections 3 and 4 present the results of regression analysis, ie the factors that influence the propensity to use different financial strategies and the scope of the exposure. In Section 5 we offer robustness checks of the results, using data on financial strategies at the edge of financial crisis. Section 6 concludes.

2 Methodology and Data

We use the unique dataset originating from the 17th round of the Russia Longitudinal Monitoring Survey of HSE (RLMS-HSE)¹, which is a series of nationally representative surveys² designed to monitor the effects of Russian reforms on the health and economic welfare of households and individuals in Russia. The surveys, which gather data on Russian households' income, expenditures and welfare, have been conducted 18 times since 1992. Of these, 15 represent RLMS Phase II, which has been run jointly by the Carolina Population Center at the University of North Carolina at Chapel Hill and the Demoscope team in Russia.

Our dataset is based on household and individual surveys. In RLMS-HSE, a household includes all people living with the respondent and having common income and expenditures. If the family includes unmarried children under 18, who are not living with the respondent because they study in a different city, they are also included in the household. The data of the 17th round was collected in September – December 2008, which enables us to observe households' decisions during the early phase of the financial crisis.

The original database covers approximately 5300 households and 13500 individuals. After cleaning the household database and merging it with that for individuals (by head of household) we end up with 5186 households in our dataset. The number of observations, however, may differ for different specifications of our econometric model.

- 1) We study the full range of financial-strategy characteristics available in the dataset, examining the following:
- 2) Whether the household has savings
- 3) Whether the household saved last month (during financial crisis)
- 4) Whether the household has bank loans
- 5) Whether the household borrowed from a bank last month
- 6) (during financial crisis)
- 7) Whether the household has private loans
- 8) Whether the household borrowed from private parties last month (during financial crisis)
- 9) If so, how much (for all of the above)
- 10) Whether the household plans to borrow from a bank in the next 12 months

¹ Sources: Russia Longitudinal Monitoring survey, RLMS-HSE, conducted by Higher School of Economics, ZAO Demoscope, Carolina Population Center of the University of North Carolina at Chapel Hill, and the Institute of Sociology RAS.

² Sampling details may be found at the RLMS-HSE web-site, <http://www.cpc.unc.edu/projects/rlms-hse/project/sampling>

For each of these questions except number 7, we introduce a dummy variable equal to one if a household chooses the corresponding strategy or zero otherwise. For question 9 we introduce eight variables equal to the corresponding amounts of savings, borrowing and loans (for those observations with corresponding Dummy equal to one). We use the “during financial crisis” variables for robustness checks. The details of these dependent variables (DepVars) will be discussed below.

As different theories suggest, the following groups of factors may influence the household's choice of financial strategy and the extent to which it is exposed to the chosen strategy:

- 1) Current and future income
- 2) Personal characteristics
- 3) Employment characteristics
- 4) Self-esteem and social characteristics
- 5) Financial literacy and experience

To determine the influence of different groups of factors on household strategy choice as well as on the amount of savings and loans for those who chose any strategy, we run the following regressions. The basic model includes only standard inter-temporal choice theory variables and control variables:

$$DepVar_i = f_0(Income_i, Control_i) \quad (1)$$

The first extended model takes account of personal characteristics of the head of household:

$$DepVar_i = f_1(Income_i, Personal_i, Control_i) \quad (2)$$

The second extended model is estimated for those heads of household who are employed and includes the length of the working week as well as work satisfaction and fear of job loss:

$$DepVar_i = f_2(Income_i, Labour_i, Control_i) \quad (3)$$

The third extended model controls for the household's self-estimation of financial situation, trajectory of development and relative richness and respect of others:

$$DepVar_i = f_3(Income_i, Social_i, Control_i) \quad (4)$$

The fourth extended model includes the financial literacy variable:

$$DepVar_i = f_4(Income_i, FinLit_i, Control_i) \quad (5)$$

The last model, used in robustness checks, is aimed to control for relationships obtained in the previous stages and includes all groups of factors except employment characteristics (in order not to limit the sample to households where the head is employed):

$$DepVar_i = f_5(Income_i, Personal_i, Social_i, FinLit_i, Control_i) \quad (6)$$

We estimate robit models for strategy choice variables and OLS for the amounts of savings and loans (with Heckman maximum likelihood correction). We cluster the errors by region.

Table 1 includes all dependant variables describing the measurement methodology.

Table 1 Financial strategy variables

Variable	N	Avg	S.E.	Min.	Max.	Description/survey question
savings	5186	0.205	0.404	0.000	1.000	How much did your family manage to save, i.e., what savings does your family have today - at home or on bank deposit, or in floater? If the debt is estimated in other currency, please convert it into rubles (if the amount exceeds zero, this denotes that savings variable equals to 1)
savings_am*	1063	38.624	65.705	0.100	1000.000	
savings_c	5186	0.141	0.348	0.000	1.000	Did your family in the last 30 days save any money?
savings_c_am*	618	8.953	15.877	0.100	250.000	How many rubles' worth did your family save in the last 30 days?
bloan	5186	0.267	0.442	0.000	1.000	Does your family have any credit debts today?
bloan_am*	1249	135.687	410.349	0.056	10700.000	How much money does your family owe in credit today? If the debt is estimated in other currency, please convert it into rubles.
bloan_c	5186	0.027	0.163	0.000	1.000	In the last 30 days, did your family take money on credit?
bloan_c_am*	132	61.910	139.103	1.100	1100.000	How much in rubles?
loanplan	5186	0.035	0.183	0.000	1.000	Are you going to borrow money from a bank in the next 12 months?
ploan	5186	0.072	0.259	0.000	1.000	Does your family have any money debts to private persons today?
ploan_am*	375	20.924	45.964	0.080	350.000	How much money does your family owe in credit today? If the debt is estimated in other currency, please convert it into rubles
ploan_c	5186	0.062	0.240	0.000	1.000	In the last 30 days, did your family borrow money from private persons?
ploan_c_am*	302	13.927	45.087	0.100	480.000	How much in rubles?

* - in thousands of rubles

Thus, over 20 percent of the respondents claim to have some savings. The average amount of savings is 38.5 thousand rubles. As for the crisis period, only 14 percent of the households saved anything, and the average amount is much lower, 9 thousand rubles.

Borrowers are even more frequent among respondents – 27 percent of the households borrow from a bank (another 3 percent plan to borrow next year), 7 percent borrow from private parties. The average bank loan is for 136 thousand rubles, and only 21 thousand rubles on average was borrowed privately. The crisis undermined bank borrowing - only 3 percent of the households borrowed from a bank in the last 30 days, the average

amount being 62 thousand rubles - but did not greatly reduce private borrowing (6 percent and 14 thousand respectively).

The next six tables present the groups of factors which may influence households' financial strategies. Table 2 presents the income variables. The average household monthly income does not exceed 25 thousand rubles. Less than half (40 percent) of the respondents said they expect no change in their financial situation during the next year, another 20 percent believed they would earn more.

We expect that households with higher incomes and worse prospects will save more often and more in total. Borrowings will depend on demand or supply conditions. For a market without credit rationing, we expect those with higher incomes and better prospects to borrow less frequently and less in total, and vice versa in the case of credit rationing.

Table 2 Income variables

<i>Variable</i>	<i>N</i>	<i>Avg</i>	<i>S.E.</i>	<i>Min.</i>	<i>Max.</i>	<i>Description/survey question</i>
income*	4894	24.971	38.702	0	1148	Household income, last 30 days
fin_nochange12	2920	0.725	0.446	0	1	Do you think that in the next 12 months you and your family will live better than today or worse? 1 - "Nothing will change", 0 - "You will live much worse" or "You will live somewhat worse"
fin_better12	1864	0.567	0.495	0	1	Do you think that in the next 12 months you and your family will live better than today or worse? 1 - "You will live much better" or "You will live somewhat better", 0 - "You will live much worse" or "You will live somewhat worse"

* - in thousands of rubles

The personal characteristics of respondents are presented in Table 3. Most are not smarter than the others, according to the interviewer, but we can expect them to be more attached to the chosen financial strategy in general, though not during the financial crisis. Twenty percent of respondents are neutral in terms of life satisfaction and 40 percent are satisfied with their lives. We expect the latter to save more and borrow less and less often. This would correspond to the precautionary life-style in contrast to 'living on credit'. Many respondents are helpful to outsiders: 30 percent help outside relatives and 6 percent even help outsiders who are not relatives. These are expected to borrow mostly privately rather than from banks, being involved in mutual help networks.

Table 3 Personal characteristics

<i>Variable</i>	<i>N</i>	<i>Avg</i>	<i>S.E.</i>	<i>Min.</i>	<i>Max.</i>	<i>Description/survey question</i>
smart_same*	4715	0.936	0.244	0	1	The respondent was 1 - as bright as the majority of respondents, 0 - slow-witted
smart_more*	5163	0.087	0.282	0	1	The respondent was 1 - notably brighter than the majority of respondents, 0 - slow-witted
life_sat	3112	0.388	0.487	0	1	Life satisfaction: 1 - Neutral, 0 - "Rather dissatisfied" or "Fully dissatisfied"
life_sat_more	3952	0.518	0.500	0	1	Life satisfaction: 1 - "Fully satisfied" or "Rather satisfied", 0 - "Rather dissatisfied" or "Fully dissatisfied"
help_in	5186	0.325	0.469	0	1	Do you help you relatives, who are not in the household? 1 - Yes, 0 - otherwise
help_out	5186	0.061	0.240	0	1	Do you help other people, who are not in the household? 1 - Yes, 0 - otherwise

*According to the interviewer

For those who are employed (more than half of the respondents), the attitude to employment may influence the choice of financial strategy. Nine percent of households include members working in another city and commuting to work. We expect them to save more and more often. Those who are more or less satisfied with their remuneration (approximately 30 percent) also seem to be more likely to save and less likely to apply for loans. The opposite should be true for those who are worried about job loss (40 percent of respondents). Details on these variables are presented in Table 4.

Table 4 Employment characteristics

<i>Variable</i>	<i>N</i>	<i>Avg</i>	<i>S.E.</i>	<i>Min.</i>	<i>Max.</i>	<i>Description/survey question</i>
wweek	2964	41.590	11.737	4	120	Working hours, per week
working_out	5186	0.094	0.293	0	1	For-work mobility of all household members
ch_work	1776	0.168	0.374	0	1	Please try to recall whether you have changed your place of work or profession since November 2007, or has everything remained the same? 1 - "Changed profession, but not place of work" or "Changed place of work, but not profession" or "Changed both place of work and profession", 0 - "Profession and place of work remain the same"
sat_rem	2060	0.263	0.440	0	1	Satisfaction with remuneration: 1 - Neutral, 0 - "Rather dissatisfied" or "Fully dissatisfied"
sat_rem_more	2439	0.378	0.485	0	1	Satisfaction with remuneration: 1 - "Fully satisfied" or "Rather satisfied", 0 - "Rather dissatisfied" or "Fully dissatisfied"
workfear_neutral	1242	0.271	0.444	0	1	How concerned are you that you might lose your job? 1 -Neutral 0 - "Not very concerned" or "Not concerned at all"
workfear	2669	0.661	0.474	0	1	How concerned are you that you might lose your job? 1 - "Very concerned" or "A bit concerned", 0 - "Not very concerned" or "Not concerned at all"

Most respondents are quite sure about household-member incomes (see Table 5). Those who are not should be rare among borrowers, due to repayment discipline. Among the self-esteem factors, we emphasize “financial history” (recent changes in household’s financial situation) and “financial satisfaction” (with household’s current financial situation). More

than half of the respondents faced no change and one quarter reported an improvement in economic situation. We expect these to save more and more often and to borrow less. The majority of respondents (60%) are however still dissatisfied with their finances and so may borrow more.

Few consider themselves rich: 96% of the households considered themselves low or middle-income households. The propensity to save should be lower for them, but they may borrow less frequently as well, because such self-positioning may be explained by some unambiguous external opinion or estimation. On the other hand, if we consider the respect accorded to respondents, most (94%) consider themselves to be highly – or at least moderately – respected. We expect these households to save more and borrow less, and to rely on private parties rather than banks (especially during the crisis).

Table 5 Self-esteem and social characteristics

<i>Variable</i>	<i>N</i>	<i>Avg</i>	<i>S.E.</i>	<i>Min.</i>	<i>Max.</i>	<i>Description/survey question</i>
sure_inc	5186	0.877	0.329	0	1	Are you sure you know everything about household member incomes?
fin_nochange	3770	0.741	0.438	0	1	How has the financial situation of your family changed in the last 12 months? 1 - "Has not changed", 0 - "Worsened"
fin_better	2344	0.583	0.493	0	1	How has the financial situation of your family changed in the last 12 months? 1 - "Improved", 0 - "Worsened"
fin_sat	4088	0.235	0.424	0	1	How satisfied are you with your economic conditions at the present time? 1 - Neutral, 0 - Dissatisfied
fin_sat_more	4190	0.253	0.435	0	1	How satisfied are you with your economic conditions at the present time? 1 - Satisfied, 0 - Dissatisfied
s_rich2	4922	0.598	0.490	0	1	Imagine a nine-step ladder where on the bottom, the first step, stand the poorest people, and on the highest step, the ninth, stand the rich, On which step of the nine steps are you personally standing today? 1 - 4-6 step, 0 - 1-3 step
s_rich3	2183	0.093	0.290	0	1	Imagine a nine-step ladder where on the bottom, the first step, stand the poorest people, and on the highest step, the ninth, stand the rich, On which step of the nine steps are you personally standing today? 1 - 7-9 step, 0 - 1-3 step
s_resp2	2787	0.890	0.313	0	1	Imagine a nine-step ladder where on the lowest step stand people who are absolutely not respected, and on the highest step stand those who are very respected, On which of the nine steps are you personally standing today? 1 - 4-6 step, 0 - 1-3 step
s_resp3	2461	0.876	0.330	0	1	Imagine a nine-step ladder where on the lowest step stand people who are absolutely not respected, and on the highest step stand those who are very respected, On which of the nine steps are you personally standing today? 1 - 7-9-6 step, 0 - 1-3 step

The institutional factors are presented in Table 6. We concentrate on the financial literacy and financial experience of the head of the household, as these may stimulate the household to save and/or to borrow. We proxy financial literacy by higher education (includes one quarter of respondents), employment in finance, education or science (10 percent) and internet use (22 percent). Experience is proxied by the use of bank cards (30 percent have

cards, 22 percent use them only for withdrawing cash) and foreign currency and stock market participation (however, less than one percent of respondents have such experience).

Table 6 Financial literacy and experience

<i>Variable</i>	<i>N</i>	<i>Avg</i>	<i>S.E.</i>	<i>Min.</i>	<i>Max.</i>	<i>Description/survey question</i>
inet	5186	0.217	0.412	0	1	Internet usage, last 30 days
gen_inv	5186	0.006	0.078	0	1	Did your family spend money in the last 30 days, for stocks, bonds, or other investment papers? For buying currency with the aim of saving? In the last 30 days, did your family sell shares or other securities? 1 - Yes (at least one activity), 0 - None of these
card_use_cash	4778	0.249	0.433	0	1	How do you use your bank card? 1 - Only in order to draw out money from account, 0 - No card
card_use_pay	3616	0.008	0.089	0	1	How do you use your bank card? 1 - Only in order to pay for goods and services, 0 - No card
card_use_both	3966	0.096	0.294	0	1	How do you use your bank card? 1 -In order to draw out money from account and to pay for goods and services, 0 - No card
edu	5186	0.241	0.428	0	1	Education: 1 - Higher education, 0 - Otherwise
finprof	5186	0.104	0.305	0	1	1 - if the respondent is occupied in Finance, Science or Education, 0 - otherwise

Finally Table 7 includes a set of control variables, such as demographic factors, nationality, household size and composition, and living conditions. Most respondents are female and Russian, and the average age is approximately 49. The majority are in married (officially or not) couples with two children living in a one-bedroom apartment in a city or town.

We expect that households with more members and children, smaller apartments and living in an urban area to save more and more often. The hypotheses related to borrowing from a bank are again different, depending the nature of the market.

Table 7 Control variables

<i>Variable</i>	<i>N</i>	<i>Avg</i>	<i>S.E.</i>	<i>Min.</i>	<i>Max.</i>	<i>Description/survey question</i>
sex	5186	0.888	0.315	0	1	Sex. 0 – male, 1 - female
age	5184	49.158	16.899	17	95	Age
rus	5186	0.852	0.356	0	1	Nationality. 1- Russian, 0 - otherwise
married	5176	0.605	0.489	0	1	Marital status: 1 - married or living with a partner, 0 – single, divorced, married, but living separately
hh_size	5186	2.742	1.419	1	13	Number of household members
child	4498	1.736	0.861	1	12	Number of children
h_rooms	5171	2.269	0.991	1	10	Number of rooms in apartment
rural	5186	0.304	0.460	0	1	A household lives in 1 – countryside, 0 - city or town

* - in thousands of rubles

3 Becoming a saver or a borrower: results

The results for probability of positive savings regressions are presented in Table 8³. As the inter-temporal theory suggests, higher current income increases the probability of saving. However, the coefficient is very low, so that the economic significance is likely to be minor. Moreover, expectations about future incomes have a U-shaped effect. Compared to respondents who expect a deterioration in family finances during the next year, households expecting no change save less, as predicted by the theory. At the same time, respondents who expect an increase in wealth save more. Thus the influence of future income is not fully in accord with the predictions of inter-temporal choice theory.

Respondents' personal characteristics proved to be important for the propensity to save. Controlling for income variables and other basics (age, nationality, marital status, household size, number of children), the respondents who seem to be the smartest and who are satisfied with their lives and are used to helping other people (even non-household-members) are more likely to save.

Working heads of household are more likely to save if they enjoy a shorter work week or are satisfied with their remuneration. Surprisingly, the fear of being fired does not stimulate saving.

The personal perception of the household's financial situation is significant for the propensity to save, unlike the perception of financial situation compared to other households. Those who enjoy stable or improving financial conditions as well as those who are satisfied with them are more likely to save. The explanation for this could be that they accumulate a precautionary buffer in the current situation of financial well-being. On the other hand, feeling richer than others does not stimulate saving.

Finally, financial literacy (in terms of experience and education) promotes saving. The propensity to save is higher if the head of household has a higher education or the household has some experience in dealing with financial markets, as is the case for possession of bank cards and their use in acquiring cash (adding a payment function, however, reduces the propensity to save). But the use of internet or being in a financial profession has no effect on savings.

³ Only statistically significant control variables are reported.

As for the control variables, households with an older head who is married (or living with a partner), such that at least one partner considers him/herself to be Russian, are more likely to save. The same is true for the smaller ones and those with less children.

Table 8 Results: Savings (probability, marginal effects)

Variable	I	Variable	II	Variable	III	Variable	IV	Variable	V
income	0.000 (0.000)**	income	0.000 (0.000)**	income	0.000 (0.000)**	income	0.000 (0.000)**	income	0.000 (0.000)**
fin_nochange12	-0.021 (0.016)	fin_nochange12	-0.033 (0.016)**	fin_nochange12	-0.058 (0.025)**	fin_nochange12	-0.065 (0.018)**	fin_nochange12	-0.015 (0.016)
fin_better12	0.071 (0.032)**	fin_better12	0.033 (0.028)	fin_better12	0.024 (0.039)	fin_better12	-0.018 (0.031)**	fin_better12	0.079 (0.031)**
		smart_same	0.031 (0.026)	wweek	-0.002 (0.001)***	sure_inc	-0.008 (0.030)	inet	0.028 (0.020)
		smart_more	0.167 (0.055)***	working_out	0.049 (0.034)	fin_nochange	0.057 (0.024)**	gen_inv	0.269 (0.101)***
		life_sat	0.096 (0.022)***	ch_work	-0.028 (0.028)	fin_better	0.115 (0.025)***	card_use_cash	0.043 (0.022)*
		life_sat_more	0.088 (0.025)***	sat_rem	0.064 (0.028)**	fin_sat	0.051 (0.027)*	card_use_pay	-0.018 (0.094)
		help_in	0.099 (0.017)***	sat_rem_more	0.052 (0.032)	fin_sat_more	0.058 (0.027)**	card_use_both	-0.054 (0.025)**
		help_out	0.126 (0.030)***	workfear_neutral	-0.002 (0.028)	s_rich2	0.036 (0.023)	edu	0.059 (0.018)***
				workfear	-0.032 (0.024)	s_rich3	0.051 (0.053)	finprof	0.017 (0.026)
						s_resp2	-0.016 (0.038)		
						s_resp3	0.024 (0.036)		
age	0.004 (0.001)***	age	0.004 (0.001)***	age	0.005 (0.001)***	age	0.004 (0.001)***	age	0.005 (0.001)***
rus	0.073 (0.028)***	rus	0.071 (0.028)**	rus	0.089 (0.031)***	rus	0.074 (0.029)**	rus	0.070 (0.027)**
married	0.075 (0.019)***	married	0.046 (0.019)**	married	0.057 (0.023)**	married	0.067 (0.019)***	married	0.077 (0.019)***
hh_size	-0.022 (0.006)***	hh_size	-0.011 (0.006)*	hh_size	-0.031 (0.009)***	hh_size	-0.022 (0.007)***	hh_size	-0.024 (0.007)***
child	-0.018 (0.008)**	child	-0.027 (0.009)***	child	-0.001 (0.014)	child	-0.014 (0.009)	child	-0.016 (0.008)**
N	3,777.000		3,746.000		1,931.000		3,587.000		3,777.000
LR chi^2	138.728***		419.876***		169.491***		269.408***		234.946***
Pseudo R^2	0.038		0.070		0.049		0.055		0.048

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Thus our results suggest that - controlling for a large number of factors - smartness, readiness to help others, satisfaction with life and finances,⁴ and recent financial improvement increase the likelihood of saving much more than do the factors suggested by the theory, ie higher income and precautionary concerns. The former factors, which have not been considered in previous studies, proved to have significant effects; hence the saving decision may be based on feelings and self-estimation rather than economic rationality and forward-

⁴ One may think that these two variables are highly correlated as life satisfaction may be explained by healthy financial situation. Surprisingly that's not true for Russian households: 42 percent of those, who are satisfied with their lives, are satisfied with their financial situation, but 37 percent are dissatisfied with the rest 21 percent being neutral.

looking expectations. Although the regression dealing with financial literacy provides a slightly weaker explanation of the data, it seems to show the significance of the factor with the greatest influence - financial literacy due to financial experience and education. This corresponds with the results for US data by Han and Sherraden (2009), who however use different measures of financial literacy.

In analyzing borrowers' behavior we concentrate on bank loans. Table 9 presents the results.

We start with the basic income variables. Households expecting stable or higher incomes in future are more likely to be borrowers. This corresponds well with intertemporal choice theory. At the same time current income has a positive influence on this probability (albeit very small and unstable). This could mean that supply-side factors outweigh demand-side factors: households with lower incomes may be rationed even if they have a certain demand for bank loans, as current income is one of the most frequently applied criteria for banks' lending decisions.

Personal characteristics are not significant, with one exception: those ready to help other people outside the household are more likely to borrow. Nor are employment characteristics important. The only factor that influences the probability of becoming a bank client is the length of the work week: the more the working hours, the higher the probability. This can also add to the supply-side story: those who work more may be considered more reliable borrowers.

Respondents who are satisfied with their household's financial situation are less likely to have a bank loan. Thus a bank loan seems to be a source of dissatisfaction to the borrower. Quite naturally those who are not quite sure about household income are less likely to become borrowers.

Financial literacy, proxied by occupation and experience, proved to be significant: those who actively use bank cards and have finance-related jobs are more likely to be bank clients.

As for controls, the households with a female, younger or married head or that include more children or are larger are all more likely to borrow from the bank. This profile is the opposite of a saving household, and accords better with the demand-side group of factors.

Thus our results suggest that behind the fact of a household being a bank borrower is a mixture of supply-side (current and future income) and demand-side factors (larger

households with more children). The largest effect is, however, provided by financial literacy (as in case of savings).

Table 9 Results: Bank loans (probability, marginal effects)

Variable	I	Variable	II	Variable	III	Variable	IV	Variable	V
income	0.000 (0.000)	income	0.000 (0.000)	income	0.000 (0.000)*	income	0.000 (0.000)	income	0.000 (0.000)
fin_nochange12	0.047 (0.021)**	fin_nochange12	0.045 (0.020)**	fin_nochange12	0.069 (0.031)**	fin_nochange12	0.050 (0.025)**	fin_nochange12	0.054 (0.022)**
fin_better12	0.067 (0.025)***	fin_better12	0.061 (0.025)**	fin_better12	0.104 (0.036)***	fin_better12	0.077 (0.028)***	fin_better12	0.072 (0.026)***
		smart_same	0.040 (0.035)	wweek	0.003 (0.001)***	sure_inc	-0.077 (0.037)**	inet	0.003 (0.021)
		smart_more	0.009 (0.053)	working_out	0.010 (0.057)	fin_nochange	0.026 (0.022)	gen_inv	-0.032 (0.092)
		life_sat	0.019 (0.023)	ch_work	0.015 (0.035)	fin_better	0.043 (0.022)*	card_use_cash	0.097 (0.023)***
		life_sat_more	0.004 (0.019)	sat_rem	-0.030 (0.038)	fin_sat	-0.068 (0.019)***	card_use_pay	0.423 (0.128)***
		help_in	0.047 (0.019)**	sat_rem_more	-0.029 (0.031)	fin_sat_more	-0.084 (0.020)***	card_use_both	0.162 (0.044)***
		help_out	0.095 (0.040)**	workfear_neutral	-0.018 (0.042)	s_rich2	0.032 (0.021)	edu	-0.008 (0.016)
				workfear	0.004 (0.034)	s_rich3	0.040 (0.044)	finprof	0.060 (0.028)**
						s_resp2	-0.017 (0.035)		
						s_resp3	0.011 (0.034)		
sex	0.085 (0.020)***	sex	0.085 (0.020)***	sex	0.099 (0.040)**	sex	0.071 (0.021)***	sex	0.089 (0.020)***
age	-0.008 (0.001)***	age	-0.008 (0.001)***	age	-0.008 (0.001)***	age	-0.007 (0.001)***	age	-0.007 (0.001)***
married	0.056 (0.019)***	married	0.045 (0.018)**	married	0.079 (0.031)**	married	0.052 (0.020)***	married	0.055 (0.019)***
hh_size	0.030 (0.009)***	hh_size	0.034 (0.009)***	hh_size	0.016 (0.014)	hh_size	0.025 (0.009)***	hh_size	0.032 (0.009)***
child	0.025 (0.010)**	child	0.021 (0.010)**	child	0.045 (0.016)***	child	0.030 (0.010)***	child	0.022 (0.009)**
N	3,777.000		3,746.000		1,931.000		3,587.000		3,777.000
LR chi^2	1,619.170***		3,332.863***		266.841***		2,078.436***		2,405.767***
Pseudo R^2	0.125		0.131		0.055		0.130		0.140

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Who are more likely to say they are going to borrow from a bank during the next 12 month, given that a crisis is in the offing (see Table 10)? These are younger households with more children and a readiness to help people outside the household. What undermines the incentives to borrow are satisfaction with remuneration from employment and fear of being fired. Satisfaction with the household's current financial situation, in contrast, makes future borrowings more probable. The same effect obtains for the use of bank cards for cash withdrawals or for both withdrawals and payments. The effects of the significant variables, however, do not differ greatly from each other and are not very strong.

Table 10 Results: Next year bank loans (probability, marginal effects)

<i>Variable</i>	I	<i>Variable</i>	II	<i>Variable</i>	III	<i>Variable</i>	IV	<i>Variable</i>	V
income	0.000 (0.000)*	income	0.000 (0.000)	income	0.000 (0.000)*	income	0.000 (0.000)	income	0.000 (0.000)
fin_nochange12	-0.000 (0.007)	fin_nochange12	0.000 (0.007)	fin_nochange12	0.001 (0.015)	fin_nochange12	0.001 (0.006)	fin_nochange12	0.001 (0.006)
fin_better12	0.009 (0.009)	fin_better12	0.006 (0.009)	fin_better12	0.018 (0.019)	fin_better12	0.003 (0.008)	fin_better12	0.009 (0.008)
		smart_same	0.006 (0.013)	wweek	0.001 (0.000)*	sure_inc	-0.014 (0.010)	inet	0.003 (0.008)
		smart_more	0.015 (0.025)	working_out	0.015 (0.019)	fin_nochange	0.002 (0.008)	gen_inv	0.076 (0.049)
		life_sat	-0.006 (0.005)	ch_work	0.010 (0.016)	fin_better	0.020 (0.011)*	card_use_cash	0.016 (0.007)**
		life_sat_more	0.000 (0.006)	sat_rem	-0.026 (0.009)***	fin_sat	-0.001 (0.007)	card_use_pay	0.102 (0.071)
		help_in	0.014 (0.007)**	sat_rem_more	-0.009 (0.011)	fin_sat_more	-0.006 (0.005)	card_use_both	0.027 (0.012)**
		help_out	0.019 (0.018)	workfear_neutral	-0.014 (0.014)	s_rich2	0.004 (0.008)	edu	0.007 (0.006)
				workfear	-0.028 (0.011)**	s_rich3	-0.002 (0.010)	finprof	0.005 (0.009)
						s_resp2	-0.013 (0.013)		
						s_resp3	-0.005 (0.012)		
age	-0.001 (0.000)***		-0.001 (0.000)***		-0.001 (0.000)***		-0.001 (0.000)***		-0.001 (0.000)***
child	0.007 (0.003)**		0.007 (0.003)**		0.010 (0.008)		0.008 (0.003)***		0.007 (0.003)**
<i>N</i>	3,777.000		3,746.000		1,931.000		3,587.000		3,777.000
<i>LR chi^2</i>	151.703***		150.935***		140.117***		175.466***		343.023***
<i>Pseudo R^2</i>	0.068		0.080		0.046		0.081		0.092

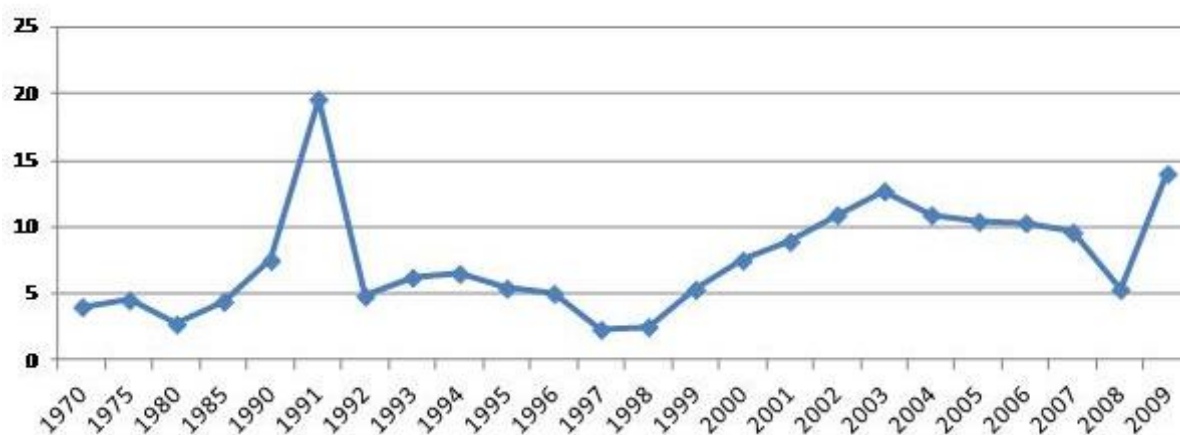
* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

4 How much to save or to borrow: results

We now consider those who are savers or bank borrowers and analyze the factors that influence the amounts saved or borrowed. This allows us to analyze exposure to chosen financial strategies. We estimate the regressions via Heckman maximum likelihood and thus obtain coefficients that are conditional on a household choosing a given financial strategy.

We start with savings (see Table 11). Higher income naturally increases total savings, adding approximately 0.2 ruble to total savings per ruble of household income. This is comparable to the macro data showing that 14 percent of total income went into savings in 2009 (see Figure 1)⁵, up from just 5 percent in 2007 (these data include such households).

Figure 1 Household saving, % of total income



Personal characteristics are significant: those satisfied with their lives, and those helping relatives outside the household save 8-12.5 and 10 thousand rubles more respectively (however, these results are not stable). Working conditions and fear of job loss have no effect at all. However, those satisfied with their remuneration, save 12-14 thousand rubles more. Those who are neutral about or satisfied with their households' financial situation save 14.5 and 25 thousand rubles respectively.

Financial literacy and experience also boost savings: those with experience in the financial markets save 44 thousand rubles more, and the use of bank cards for cash withdrawals adds another 9.5-11 thousand. Respondents with higher education save an additional 20 thousand rubles, but those working in finance, science or education save 14 thousand rubles less.

Finally, more is saved by households with a male head (this adds approximately 16-19 thousand rubles to total savings), older (each year adds 1126 rubles, but not in all specifications), owning larger apartments (each room means an additional 8200-9100 rubles in savings), having less children (each additional child means 4-7 thousand less of savings) and living in an urban area (these households save 13-20 thousand rubles more).

⁵ Source: Russian Federation Federal State Statistics Service (Rosstat).

Table 11 Results: Savings (amount)

Variable	I	Variable	II	Variable	III	Variable	IV	Variable	V
income	0.221 (0.124)*	income	0.215 (0.116)*	income	0.129 (0.092)	income	0.194 (0.111)*	income	0.187 (0.123)
fin_nochange12	734.798 (3,965.883)	fin_nochange12	-547.348 (4,286.594)	fin_nochange12	2,473.641 (5,144.531)	fin_nochange12	-5,495.845 (4,903.290)	fin_nochange12	4,423.446 (4,937.340)
fin_better12	-434.209 (5,080.642)	fin_better12	-2,981.270 (5,255.210)	fin_better12	-6,461.444 (5,872.648)	fin_better12	-14,322.006 (5,448.384)***	fin_better12	3,549.234 (6,058.902)
		smart_same	10,856.954 (7,302.254)	wweek	-192.346 (132.721)	sure_inc	5,900.351 (5,774.448)	inet	3,989.452 (7,591.615)
		smart_more	10,477.382 (8,390.087)	working_out	11,144.266 (10,185.108)	fin_nochange	-5,021.417 (7,351.470)	gen_inv	41,298.631 (25,748.483)
		life_sat	8,777.912 (4,441.936)**	ch_work	-6,352.068 (6,485.151)	fin_better	580.937 (9,072.560)	card_use_cash	11,726.088 (4,198.473)***
		life_sat_more	12,457.110 (3,938.396)***	sat_rem	14,502.914 (6,740.332)**	fin_sat	14,444.155 (7,904.701)*	card_use_pay	-25,851.893 (15,216.293)*
		help_in	9,727.731 (4,737.499)**	sat_rem_more	12,334.300 (5,155.260)**	fin_sat_more	25,136.741 (7,596.704)***	card_use_both	6,590.737 (15,188.829)
		help_out	4,009.484 (5,641.544)	workfear_neutral	-3,058.471 (6,810.855)	s_rich2	6,747.703 (4,727.529)	edu	23,006.061 (7,741.752)***
				workfear	5,343.963 (8,989.467)	s_rich3	11,474.617 (11,462.445)	finprof	-13,567.557 (4,576.685)***
						s_resp2	-3,736.726 (7,751.597)		
						s_resp3	549.806 (8,525.247)		
sex	-19,400.464 (10,480.912)*		-19,630.807 (9,843.423)**		-32,118.577 (24,927.369)		-19,266.938 (11,182.321)*		-16,104.987 (9,514.813)*
age	180.937 (200.771)		200.636 (221.469)		1,125.821 (500.263)**		161.930 (196.762)		306.265 (191.314)
child	-2,840.914 (1,967.391)		-4,723.881 (2,742.924)*		-7,908.356 (3,352.834)**		-2,906.859 (2,059.982)		-1,374.594 (1,689.833)
h_rooms	9,108.221 (4,146.965)**		8,446.892 (3,839.116)**		6,568.018 (7,009.978)		8,702.327 (3,990.703)**		8,828.350 (4,151.815)**
rural	-20,331.983 (9,359.967)**		-18,885.142 (8,859.929)**		-24,089.117 (11,298.367)**		-16,859.977 (8,289.316)**		-12,851.913 (6,890.832)*
const	46,777.884 (20,254.136)**		24,910.939 (18,909.830)		31,139.895 (24,320.345)		37,337.004 (21,070.475)*		22,577.479 (17,308.738)
AthRho	-0.170 (0.068)**		-0.158 (0.064)**		-0.178 (0.088)**		-0.162 (0.061)***		-0.158 (0.062)**
N	3,777.000		3,767.000		3,355.000		3,740.000		3,777.000
Chi^2	59.383***		182.787***		75.066***		251.839***		210.529***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Our results show that most of the factors that increase the probability of saving also increase the exposure to this financial strategy. The exceptions are certain financial literacy variables: being involved in financial activities increases the probability of saving but not the amount saved given that the household becomes a saver, in contrast to satisfaction with life and finances or readiness to help people outside the household.

Now we turn to borrowing. Current and future incomes prove to be among the factors with the greatest influence: each additional ruble of current income adds 0.7-1 ruble to total bank borrowing. The effect of the future-income proxy is also quite pronounced: those expecting stable incomes save an extra 30-55 thousand rubles compared to those expecting a decrease in income.

Satisfaction with life, wage and family finances as a whole prove to be important for borrowing. Those who are satisfied with their lives borrow 30-75 thousand rubles more, and those who are satisfied with their remuneration save 65 thousand rubles more. At the same time, those who changed jobs borrow less (and this is in line with the rationing theory).

Quite naturally the respondents who enjoy an improving household financial situation borrow less (by 70-75 thousand rubles). This is clearly a demand-side factor, though.

Financial literacy seems not to carry much weight. Our results suggest that education is the only such factor that is significant: those with higher education borrow 50 thousand rubles more.

Finally households living in rural areas, with non-married or Russian heads have bank loans of 45-75, 36-60 or 100 thousand rubles less respectively (see Table 12). What contradicts the inter-temporal theory but accords with credit rationing theory is that total bank borrowing is higher for households with higher incomes and at least not bad expectations about future income. Total borrowing amounts to approximately one month's household income.

Thus, in contrast to savings, the amount of the exposure to this strategy depends on a different set of factors than those that determine the choice of strategy. We show the importance of income factors that strongly influence the amount of borrowing (as well as the probability of borrowing, as shown above), but what determines the amount of borrowing is a set of life and finance satisfaction variables, significant for savings but not for the choice of borrowing strategy. This means that subjective self-estimation is important for both groups of households, savers and borrowers, although it has different effects for the two groups as regards the choice of strategy.

Table 12 Results: Bank loans (amount)

Variable	I	Variable	II	Variable	III	Variable	IV	Variable	V
income	1.011 (0.444)**	income	0.993 (0.432)**	income	0.746 (0.225)***	income	0.770 (0.248)***	income	0.922 (0.400)**
fin_nochange12	46,904.243 (25,155.419)*	fin_nochange12	39,689.575 (22,393.057)*	fin_nochange12	2,985.971 (20,605.238)	fin_nochange12	28,435.438 (22,562.815)	fin_nochange12	54,393.513 (26,010.693)**
fin_better12	6,958.825 (16,411.148)	fin_better12	-12,052.432 (20,971.047)	fin_better12	-2,822.769 (23,294.855)	fin_better12	11,453.488 (20,334.651)	fin_better12	15,591.580 (16,418.744)
		smart_same	41,481.339 (39,451.223)	wweek	253.982 (646.185)	sure_inc	-1,440.129 (27,270.836)	inet	-10,286.540 (20,671.273)
		smart_more	18,728.166 (35,111.079)	working_out	-29,240.965 (20,490.967)	fin_nochange	-50,172.604 (39,465.975)	gen_inv	-36,431.272 (86,281.854)
		life_sat	32,652.522 (16,786.941)*	ch_work	-26,993.961 (14,963.852)*	fin_better	-69,354.275 (40,905.795)*	card_use_cash	-3,695.622 (29,058.517)
		life_sat_more	76,391.412 (33,498.384)**	sat_rem	10,455.054 (18,814.269)	fin_sat	16,330.225 (15,373.980)	card_use_pay	-34,348.924 (35,178.375)
		help_in	-29,321.466 (31,486.493)	sat_rem_more	64,167.718 (27,627.837)**	fin_sat_more	51,346.967 (27,822.439)*	card_use_both	5,934.587 (31,097.862)
		help_out	620.623 (38,455.221)	workfear_neutral	15,823.131 (23,869.812)	s_rich2	19,424.167 (12,445.939)	edu	103,100.500 (66,133.909)
				workfear	-1,043.497 (20,937.157)	s_rich3	31,296.591 (58,121.702)	finprof	-45,069.833 (30,214.593)
						s_resp2	-22,675.073 (23,645.919)		
						s_resp3	-29,047.394 (26,699.329)		
married	57,961.756 (25,737.480)**	married	59,504.069 (29,545.527)**	married	31,755.201 (18,291.700)*	married	34,471.941 (14,281.567)**	married	58,521.016 (25,535.103)**
hh_size	-4,735.656 (6,646.650)	hh_size	-5,964.284 (6,428.669)	hh_size	-16,760.103 (5,956.532)***	hh_size	-7,358.830 (6,283.991)	hh_size	423.140 (7,971.849)
child	-14,035.594 (8,135.162)*	child	-11,871.521 (7,665.908)	child	3,594.224 (7,659.214)	child	-8,163.776 (5,088.302)	child	-11,552.849 (7,842.461)
h_rooms	19,762.199 (8,372.142)**	h_rooms	17,908.077 (8,196.321)**	h_rooms	23,085.275 (11,643.276)**	h_rooms	20,278.853 (8,300.747)**	h_rooms	13,369.638 (7,691.421)*
rural	-76,702.556 (25,735.403)***	rural	-73,340.109 (24,384.119)***	rural	-53,936.146 (18,860.233)***	rural	-57,336.211 (17,739.808)***	rural	-65,250.224 (25,146.822)***
const	105,168.900 (51,488.476)**		23,538.401 (79,933.270)		91,129.807 (75,756.575)		176,296.238 (74,971.004)**		68,801.699 (56,411.079)
AthRho	-0.022 (0.019)		-0.022 (0.018)		-0.041 (0.089)		-0.053 (0.032)*		-0.021 (0.019)
N	4,495.000		4,487.000		4,246.000		4,462.000		4,495.000
Chi^2	53.358***		67.504***		108.827***		99.343***		67.234***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

5 Robustness checks: financial strategies at the edge of financial crisis

We also conducted several robustness checks on our results. First, we estimated all the probit regressions⁶ for the period just before the financial crisis started, using the “last-30-days” dependant variables. The results are reported in the Appendix. The significant factors for savings during the financial crisis do not differ much from those for the probability of saving (see Table A1). Age, nationality and marital status have the same influence, but

⁶ We did not reestimate the OLS regressions, as the coefficients would be different due to the shorter period of financial strategy and would not be comparable to coefficients for stock variables.

the effects are more modest. But the number-of- children effect is twice as large. The size of the household and the place-of-residence type do not influence the propensity to save more. The inferences from inter-temporal theory are again partly substantiated: richer households save more while future income has a mixed effect. As for personal characteristics, whether the respondent is smart or helps outsiders has no bearing on crisis-period saving, in contrast to good times. Employment characteristics seem to be more significant in the period of financial turmoil. In addition to the above, savings are more probable if the household's members commute to another city to work. Those who changed their employment are, at least to some extent, less likely to save. It's worth noting that even when the financial crisis unfolded the respondents were not setting aside precautionary savings for job loss. The perception of the financial situation – personal and social – plays the same role for savings. The only sign that relative richness is important is that households that jumped from “poor-rich” to the medium ranking saved with higher probability. Once the crisis began, financial literacy lost its importance for savings. The only factor that remained significant was the use of bank cards: active users were still less likely to save.

Borrowing during financial crisis depends on a mixture of demand-side and supply-side factors as well (see Table A2). Borrowers are more likely to be younger respondents owning smaller apartments, but total income influences this probability positively (while expectations about future income are not significant). Those who seem to be smarter are less likely to borrow during the crisis, as are those who are satisfied with their wages and their families' financial situation, or at least claim to be aware of the latter. Considering financial literacy, the situation is very similar to saving in a crisis: internet users as well as bank card owners that use cards only for cash withdrawals are more likely to borrow.

Another robustness check (not reported here) implied that regional clustering could be excluded from all the estimations. The results proved to be less stable across specifications and occasionally less significant. However the main body of the results is statistically significant at the chosen significance level.

Finally we checked for the robustness of results by running the regressions with all the independent variables included (except only for employment characteristics, in order not to restrict the sample to employed respondents). Most of the results remain unchanged and thus seem to be quite robust (see Table A3 in the Appendix).

6 Conclusion

In this paper we attempted to determine whether there is a saving-borrowing dichotomy in the financial strategies of Russian households and to discover what stands behind households' choices to save and to borrow in formal and informal markets. We hypothesize these factors to include more than current and expected incomes. As numerous empirical studies have shown, personal, social and institutional characteristics may have even more influence on households' choices. For households that chose one of the strategies analyzed, we examine the determinants of the exposure, namely, the amount of funds saved, lent or borrowed. Our unique dataset allows us to find out whether the dependencies obtained are stable and extend over the financial crisis period, when the households had to change financial strategies in the changing circumstances.

Our results suggest that the saver-borrower dichotomy suggested by inter-temporal consumption theory is well founded only for savings and private borrowing, and for savings and future bank loans. Bank borrowers are frequently savers at the same time. Notably, for those who both save and borrow, the amounts of savings and borrowing are positively correlated. The dichotomy between savings and bank loans, however, appears at the onset of the financial crisis in Russia.

We show that current income increases the propensities to save and to borrow, but future income has no unambiguous effect, which again contradicts the inter-temporal theory. Individual characteristics proved to be important: smart respondents, satisfied with their lives and used to helping other people, are more likely to save. The same is true for those who are satisfied with their wages. Surprisingly, the fear of job loss does not make people save more (although it does prevent borrowing from banks). Those who enjoy stable or improving financial conditions and/or are satisfied with them, are more likely to save and less likely to borrow.

Those who borrow from banks are exposed mostly to credit rationing, implying the importance and dominance of demand-side factors (such as current and future incomes, stable employment, larger apartment etc).

Financial literacy is significant for both saving and bank borrowing. Financial education and experience increase the propensity to save (except for bank card use, which curbs saving) and to borrow from a bank.

The financial crisis did not greatly change the set of significant factors. The only exception is financial literacy, which became much less important for the choice of financial strategy.

Several policy implications may be drawn from our results. As the post-crisis recovery is going quite smoothly now in Russia, we can expect the revival of both savings and bank borrowing. The former will be stimulated by higher incomes as well as better expectations, life satisfaction, self-confidence, openness and even being in a good mood. But economic or political instability, heightened public debate about Russia's future, or bad prospects may deter saving even if incomes keep rising. The latter is mainly based on economic factors related to credit rationing and financial literacy. The second factor is important for savings as well, so that the programs aimed at increasing people's financial literacy – now gaining in popularity across Russia – seem to push in the right direction. But can we attract additional bank borrowers from an informal market? The answer our results suggest is “not easily”. These households base their decisions mostly on psychological and social factors, which are naturally difficult to influence.

We suggest at least two directions for further research. The first involves cross-country comparisons of household financial strategies. Using similar household surveys conducted in other countries, it might be possible to identify the factors that are common for most households and typical for Russia. This may help us to find the “mysterious Russian soul” in households' financial decisions based on psychological factors and using empirical data. Another possible extension of this study would be a detailed analysis of mixed strategies, namely those of households that choose more than one strategy simultaneously. The savings of bank borrowers may be explained by either the precautionary motive or by strict conditions for loan contracts. A mixture of bank and private loans may exist because of credit rationing or an unwillingness to become an “official” borrower (which may explain the negative attitudes of some people).

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Appendix

Table A1 Results: Crisis savings (probability, marginal effects)

<i>Variable</i>	I	<i>Variable</i>	II	<i>Variable</i>	III	<i>Variable</i>	IV	<i>Variable</i>	V
income	0.000 (0.000)**	income	0.000 (0.000)**	income	0.000 (0.000)*	income	0.000 (0.000)*	income	0.000 (0.000)*
fin_nochange12	-0.007 (0.019)	fin_nochange12	-0.015 (0.018)	fin_nochange12	-0.022 (0.024)	fin_nochange12	-0.047 (0.018)**	fin_nochange12	-0.002 (0.019)
fin_better12	0.103 (0.025)***	fin_better12	0.069 (0.023)***	fin_better12	0.049 (0.031)	fin_better12	0.004 (0.021)	fin_better12	0.108 (0.025)***
		smart_same	0.013 (0.020)	wweek	-0.000 (0.001)	sure_inc	-0.012 (0.021)	inet	0.030 (0.019)
		smart_more	0.058 (0.038)	working_out	0.109 (0.041)***	fin_nochange	0.058 (0.015)***	gen_inv	0.170 (0.085)**
		life_sat	0.041 (0.019)**	ch_work	-0.055 (0.018)***	fin_better	0.117 (0.021)***	card_use_cash	0.018 (0.019)
		life_sat_more	0.076 (0.015)***	sat_rem	0.056 (0.024)**	fin_sat	0.032 (0.021)	card_use_pay	0.032 (0.087)
		help_in	0.069 (0.015)***	sat_rem_more	0.097 (0.027)***	fin_sat_more	0.068 (0.022)***	card_use_both	-0.027 (0.026)
		help_out	0.034 (0.028)	workfear_neutral	0.005 (0.034)	s_rich2	0.038 (0.014)***	edu	0.036 (0.014)***
				workfear	-0.022 (0.021)	s_rich3	0.056 (0.039)	finprof	0.024 (0.022)
						s_resp2	0.027 (0.033)		
						s_resp3	0.037 (0.035)		
sex	-0.022 (0.018)		-0.021 (0.017)		-0.027 (0.026)		-0.023 (0.019)		-0.019 (0.018)
age	0.003 (0.000)***		0.003 (0.000)***		0.003 (0.001)***		0.003 (0.000)***		0.003 (0.000)***
rus	0.043 (0.015)***		0.041 (0.015)***		0.041 (0.021)*		0.049 (0.014)***		0.041 (0.015)***
married	0.037 (0.013)***		0.017 (0.014)		0.014 (0.018)		0.027 (0.014)*		0.037 (0.013)***
hh_size	-0.008 (0.005)*		-0.000 (0.005)		-0.013 (0.007)**		-0.007 (0.005)		-0.009 (0.005)*
child	-0.029 (0.006)***		-0.035 (0.007)***		-0.021 (0.011)**		-0.028 (0.007)***		-0.028 (0.006)***
h_rooms	0.005 (0.006)		-0.000 (0.006)		-0.002 (0.010)		0.003 (0.007)		0.003 (0.007)
rural	-0.014 (0.013)		-0.009 (0.013)		-0.035 (0.017)**		-0.012 (0.014)		-0.001 (0.014)
<i>N</i>	3,777.000		3,746.000		1,931.000		3,587.000		3,777.000
<i>LR chi^2</i>	114.665***		295.031***		300.211***		327.537***		280.249***
<i>Pseudo R^2</i>	0.040		0.062		0.061		0.067		0.048

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table A2 Results: Crisis bank loans (probability, marginal effects)

<i>Variable</i>	I	<i>Variable</i>	II	<i>Variable</i>	III	<i>Variable</i>	IV	<i>Variable</i>	V
income	0.000 (0.000)	income	0.000 (0.000)	income	0.000 (0.000)*	income	0.000 (0.000)	income	0.000 (0.000)
fin_nochange12	0.047 (0.021)**	fin_nochange12	0.045 (0.020)**	fin_nochange12	0.069 (0.031)**	fin_nochange12	0.050 (0.025)**	fin_nochange12	0.054 (0.022)**
fin_better12	0.067 (0.025)***	fin_better12	0.061 (0.025)**	fin_better12	0.104 (0.036)***	fin_better12	0.077 (0.028)***	fin_better12	0.072 (0.026)***
		smart_same	0.040 (0.035)	wweek	0.003 (0.001)***	sure_inc	-0.077 (0.037)**	inet	0.003 (0.021)
		smart_more	0.009 (0.053)	working_out	0.010 (0.057)	fin_nochange	0.026 (0.022)	gen_inv	-0.032 (0.092)
		life_sat	0.019 (0.023)	ch_work	0.015 (0.035)	fin_better	0.043 (0.022)*	card_use_cash	0.097 (0.023)***
		life_sat_more	0.004 (0.019)	sat_rem	-0.030 (0.038)	fin_sat	-0.068 (0.019)***	card_use_pay	0.423 (0.128)***
		help_in	0.047 (0.019)**	sat_rem_more	-0.029 (0.031)	fin_sat_more	-0.084 (0.020)***	card_use_both	0.162 (0.044)***
		help_out	0.095 (0.040)**	workfear_neutral	-0.018 (0.042)	s_rich2	0.032 (0.021)	edu	-0.008 (0.016)
				workfear	0.004 (0.034)	s_rich3	0.040 (0.044)	finprof	0.060 (0.028)**
						s_resp2	-0.017 (0.035)		
						s_resp3	0.011 (0.034)		
sex	0.085 (0.020)***		0.085 (0.020)***		0.099 (0.040)**		0.071 (0.021)***		0.089 (0.020)***
age	-0.008 (0.001)***		-0.008 (0.001)***		-0.008 (0.001)***		-0.007 (0.001)***		-0.007 (0.001)***
rus	0.031 (0.029)		0.028 (0.028)		0.029 (0.039)		0.034 (0.030)		0.028 (0.029)
married	0.056 (0.019)***		0.045 (0.018)**		0.079 (0.031)**		0.052 (0.020)***		0.055 (0.019)***
hh_size	0.030 (0.009)***		0.034 (0.009)***		0.016 (0.014)		0.025 (0.009)***		0.032 (0.009)***
child	0.025 (0.010)**		0.021 (0.010)**		0.045 (0.016)***		0.030 (0.010)***		0.022 (0.009)**
h_rooms	0.014 (0.010)		0.013 (0.011)		0.005 (0.017)		0.013 (0.011)		0.011 (0.011)
rural	-0.040 (0.033)		-0.038 (0.032)		-0.007 (0.058)		-0.033 (0.034)		-0.011 (0.033)
<i>N</i>	3,777.000		3,746.000		1,931.000		3,587.000		3,777.000
<i>LR chi^2</i>	1,619.170***		3,332.863***		266.841***		2,078.436***		2,405.767***
<i>Pseudo R^2</i>	0.125		0.131		0.055		0.130		0.140

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table A3 Results: Regressions with all independent variables


Panel A: Marginal effects						Panel B: Linear effects (for amounts)				
Variable	savings	crisis savings	bank loans	crisis bank loans	next-year borrowing	Variable	savings	crisis savings	bank loans	crisis bank loans
income	0.000 (0.000)**	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	income	0.161 (0.108)	0.085 (0.065)	0.710 (0.231)***	0.960 (0.038)***
fin_nochange12	-0.058 (0.019)***	-0.041 (0.019)**	0.059 (0.025)**	0.059 (0.025)**	0.003 (0.005)	fin_nochange12	-1,645.206 (4,540.892)	-2,242.415 (1,471.979)	34,534.391 (22,594.676)	-32,229.987 (45,443.848)
fin_better12	-0.017 (0.029)	0.008 (0.021)	0.085 (0.029)***	0.085 (0.029)***	0.003 (0.008)	fin_better12	-8,483.670 (5,854.963)	1,197.032 (1,557.050)	16,081.285 (18,997.086)	-23,925.537 (44,157.949)
sex	-0.007 (0.017)	-0.022 (0.018)	0.076 (0.021)***	0.076 (0.021)***	-0.002 (0.006)	sex	-16,246.940 (9,852.134)*	-980.252 (1,596.877)	-32,742.749 (52,077.514)	16,506.951 (44,519.640)
age	0.004 (0.001)***	0.003 (0.001)***	-0.007 (0.001)***	-0.007 (0.001)***	-0.001 (0.000)***	age	249.577 (193.581)	-37.515 (87.507)	-77.675 (519.161)	27.684 (669.381)
rus	0.067 (0.029)**	0.044 (0.013)***	0.028 (0.029)	0.028 (0.029)	0.004 (0.006)	rus	-7,171.407 (7,621.520)	-5,790.641 (4,761.736)	-16,524.439 (27,358.933)	-12,863.536 (29,446.138)
married	0.051 (0.018)***	0.017 (0.015)	0.040 (0.019)**	0.040 (0.019)**	0.006 (0.005)	married	-2,060.191 (4,765.617)	-753.839 (1,728.529)	35,302.868 (12,907.490)***	1,917.268 (19,048.876)
hh_size	-0.013 (0.007)*	-0.003 (0.005)	0.032 (0.009)***	0.032 (0.009)***	-0.001 (0.002)	hh_size	1,903.122 (1,837.415)	1,528.460 (1,229.663)	-5,068.026 (6,061.865)	-2,823.035 (14,610.430)
child	-0.021 (0.009)**	-0.032 (0.007)***	0.022 (0.010)**	0.022 (0.010)**	0.007 (0.003)**	child	-2,534.468 (2,215.789)	-292.140 (1,127.000)	-6,944.748 (5,589.132)	-23,476.082 (14,922.094)
h_rooms	-0.007 (0.010)	-0.001 (0.006)	0.010 (0.011)	0.010 (0.011)	-0.003 (0.002)	h_rooms	8,214.731 (3,791.672)**	2,540.587 (1,857.661)	15,704.039 (7,202.786)**	16,644.478 (16,078.365)
rural	0.044 (0.028)	-0.005 (0.015)	-0.002 (0.034)	-0.002 (0.034)	-0.000 (0.006)	rural	-9,282.947 (5,969.912)	3,422.110 (1,445.583)**	-44,009.213 (17,889.622)**	-2,394.474 (18,265.583)
smart_same	0.024 (0.027)	0.016 (0.021)	0.043 (0.037)	0.043 (0.037)	0.005 (0.013)	smart_same	5,897.169 (6,658.900)	1,404.001 (1,357.856)	3,117.730 (37,727.955)	5,781.416 (23,645.810)
smart_more	0.156 (0.057)***	0.060 (0.041)	0.004 (0.051)	0.004 (0.051)	0.010 (0.020)	smart_more	1,314.542 (7,690.320)	5,371.375 (2,794.082)*	-27,778.404 (38,868.503)	46,996.585 (59,202.842)
life_sat	0.063 (0.018)***	0.015 (0.017)	0.028 (0.022)	0.028 (0.022)	-0.006 (0.005)	life_sat	5,224.851 (4,713.926)	1,306.076 (1,323.384)	27,796.711 (15,586.892)*	6,481.053 (30,965.835)
life_sat_more	0.033 (0.023)	0.026 (0.016)*	0.013 (0.020)	0.013 (0.020)	-0.002 (0.007)	life_sat_more	-1,510.686 (4,460.726)	-126.882 (1,027.993)	44,734.349 (19,500.556)**	19,027.199 (45,933.542)
help_in	0.090 (0.017)***	0.056 (0.014)***	0.043 (0.020)**	0.043 (0.020)**	0.012 (0.006)**	help_in	8,086.566 (4,829.179)*	1,337.083 (1,386.160)	-3,822.068 (12,968.119)	-12,515.828 (11,731.248)
help_out	0.112 (0.029)***	0.024 (0.027)	0.080 (0.038)**	0.080 (0.038)**	0.014 (0.017)	help_out	-859.382 (6,799.984)	2,491.344 (1,557.478)	1,046.879 (35,416.139)	-36,139.182 (22,035.056)
sure_inc	0.004 (0.030)	-0.009 (0.023)	-0.074 (0.036)**	-0.074 (0.036)**	-0.012 (0.010)	sure_inc	10,004.242 (5,379.557)*	349.607 (1,584.036)	-3,554.463 (26,918.709)	-6,359.169 (17,459.122)
fin_nochange	0.047 (0.022)**	0.053 (0.016)***	0.020 (0.021)	0.020 (0.021)	0.001 (0.007)	fin_nochange	-5,484.816 (6,409.745)	1,161.800 (1,855.961)	-56,940.632 (39,997.447)	9,430.536 (24,747.324)
fin_better	0.100 (0.024)***	0.106 (0.022)***	0.030 (0.021)	0.030 (0.021)	0.017 (0.010)*	fin_better	422.212 (8,683.540)	-173.293 (2,201.610)	-75,666.178 (40,991.189)*	-4,394.198 (30,775.769)
fin_sat	0.036 (0.025)	0.026 (0.020)	-0.070 (0.018)***	-0.070 (0.018)***	0.000 (0.007)	fin_sat	12,940.198 (7,749.487)*	3,260.541 (1,780.908)*	3,127.201 (16,361.936)	-11,181.087 (24,992.150)
fin_sat_more	0.050 (0.024)**	0.055 (0.022)**	-0.086 (0.020)***	-0.086 (0.020)***	-0.007 (0.005)	fin_sat_more	23,593.185 (7,932.774)***	2,440.867 (1,320.909)*	30,617.496 (26,498.798)	57,284.790 (54,074.961)
s_rich2	0.023 (0.023)	0.029 (0.013)**	0.017 (0.021)	0.017 (0.021)	0.003 (0.007)	s_rich2	5,628.519 (4,352.386)	-772.165 (1,188.819)	17,027.319 (12,190.954)	-833.871 (24,690.914)
s_rich3	0.030 (0.047)	0.036 (0.035)	0.025 (0.044)	0.025 (0.044)	-0.003 (0.009)	s_rich3	10,378.805 (10,765.221)	6,461.692 (5,929.376)	33,369.305 (60,084.529)	-59,208.627 (39,354.154)
s_resp2	-0.022 (0.039)	0.024 (0.034)	-0.026 (0.035)	-0.026 (0.035)	-0.011 (0.011)	s_resp2	-5,300.378 (7,040.579)	-326.777 (2,030.876)	-27,701.184 (22,469.272)	14,812.271 (23,761.681)
s_resp3	-0.003 (0.038)	0.025 (0.036)	-0.003 (0.035)	-0.003 (0.035)	-0.006 (0.010)	s_resp3	-1,458.866 (7,427.456)	1,379.463 (1,660.736)	-39,829.392 (24,370.774)	29,355.703 (30,518.120)
inet	0.023 (0.021)	0.016 (0.018)	0.002 (0.019)	0.002 (0.019)	0.002 (0.007)	inet	6,277.393 (8,101.670)	-2,205.408 (1,930.901)	4,734.184 (13,842.550)	27,370.184 (31,433.464)
gen_inv	0.222 (0.104)**	0.114 (0.082)	-0.034 (0.093)	-0.034 (0.093)	0.031 (0.029)	gen_inv	43,913.810 (26,644.230)*	29,732.934 (16,561.029)*	-20,940.259 (76,274.084)	0.000 (0.000)
card_use_cash	0.032 (0.019)	0.013 (0.019)	0.090 (0.023)***	0.090 (0.023)***	0.012 (0.006)**	card_use_cash	9,411.050 (3,630.316)***	664.871 (1,398.691)	14,641.103 (20,369.371)	-3,522.797 (19,111.373)
card_use_pay	0.006 (0.096)	0.046 (0.086)	0.396 (0.132)***	0.396 (0.132)***	0.094 (0.066)	card_use_pay	-20,470.821 (15,532.917)	6,559.879 (4,660.482)	-23,923.191 (35,328.156)	2,643.647 (42,072.773)
card_use_both	-0.065 (0.023)***	-0.037 (0.021)*	0.171 (0.046)***	0.171 (0.046)***	0.026 (0.012)**	card_use_both	5,645.624 (14,035.715)	-858.481 (1,900.515)	34,314.360 (23,744.837)	-39,974.145 (36,215.993)
edu	0.036 (0.017)**	0.020 (0.014)	-0.006 (0.016)	-0.006 (0.016)	0.004 (0.005)	edu	21,886.638 (8,096.613)***	-2,075.639 (2,032.233)	47,819.725 (19,015.960)**	-67,364.836 (36,706.119)*
finprof	-0.003 (0.027)	0.009 (0.022)	0.054 (0.027)**	0.054 (0.027)**	0.004 (0.009)	finprof	-13,921.682 (5,655.728)**	1,972.874 (1,627.020)	-12,481.699 (16,912.745)	8,422.320 (34,035.251)
N	3,560.000	3,560.000	3,560.000	3,560.000	3,560.000	const	5,979.193 (20,810.691)	-196.043 (8,266.817)	124,581.155 (81,479.457)	29,135.426 (71,794.271)
LR chi^2	1,519.011***	3,828.079***	12,600.097***	12,600.097***	1,944.021***	AthRho	-0.149 (0.056)***		-0.047 (0.028)*	
Pseudo R^2	0.083	0.081	0.149	0.149	0.108	N	3,731.000	462.000	4,455.000	98.000
						Chi^2		0.369***		0.757***

* p<0.1; ** p<0.05; *** p<0.01

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