WHY DO PEOPLE INVEST INTO RUSSIAN MUTUAL FUNDS?

by

Alena Piskurouskaya

A thesis submitted in partial fulfillment of
the requirements for the degree of

Master of Arts in Economics

National University "Kyiv-Mohyla Academy"
Economics Education and Research Consortium
Master's Program in Economics

2006

Approved by _____
Mr. Serhiy Korablin (Head of the State Examination Committee)

_____

_____

_____

Program Authorized
to Offer Degree Master's Program in Economics, NaUKMA

Date _____

National University "Kyiv-Mohyla Academy"

Abstract

WHY DO PEOPLE INVEST INTO RUSSIAN MUTUAL FUNDS?

by Alena Piskurouskaya

Head of the State Examination Committee: Mr. Serhiy Korablin,
Economist, National Bank of Ukraine

Ten years ago first mutual funds started their operations in Russia. The crisis of 1998 leads to postponing of industry development. However most of the mutual funds survive during crisis and since the beginning of the XXI century industry of Russian mutual funds has been characterised by high growth rate. The last three years bring unexpected fluctuations in the inflow of money into the mutual funds: slowing down in 2004, moderate growth in 2005, and January surprise in 2006 when inflow during one month forms the one third of the total inflow during previous year. The unexpected behaviour of fund flows raises the issue of the main factors which determine the decision of investors to put money into the mutual fund. This paper presents one of the attempts to investigate such factors.

TABLE OF CONTENTS

Table of content i

List of figures ii

Acknowledgement iii

Glossary iv

Chapter 1. Introduction. 1

Chapter 2. Literature Review 4

Chapter 3. Data Description 10

Chapter 4. Model 12

Chapter 5. Estimation and Interpretation of Results 18

Chapter 6. Conclusions 24

Bibliography 26

Appendix 28

LIST OF FIGURES

Number *Page*
Figure 1. Error terms of the fixed effect regression 19

Table 1. Coefficients of model obtained using fixed effect method. 20

ACKNOWLEDGMENTS

I wish to thank a lot my thesis advisor Tatyana Zabotina for the countenance and useful pieces of advice she gives me, Prof. Serguei Maliar as my employer for the great experience in writing the literature review, my classmates Hanna Abilava for useful discussions, Inna Bisovetska and Yuriy Kurganov for my enlarged knowledge on Stata, Andriy Gamolya for his simple questions which make me think a lot, Bogdan Povoroznyk for the friendly atmosphere in computer labs, Oleksandr Shkurpat and Roman Kravchuk for technical support, Harry Markowitz for portfolio theory. Special gratitude for Belarusian president because if it were not such a political situation in Belarus I would never think about studying abroad and would not have an opportunity to write this thesis.

GLOSSARY

Mutual Fund is the property which is under the asset management of the management company. This property is represented by the portfolio of assets (stocks, bonds and cash) which are bought on the money obtained from the selling of shares of mutual funds by management company and agents.

Closed-end Mutual Fund is mutual fund which investors get the income only when fund stops its functioning. Sometimes such funds pay dividends.

Interval Mutual is the mutual fund which shares are traded only during certain periods during the year.

Open-end Mutual Fund is the mutual fund which shares are traded every day.

Net Asset Value (NAV) is the value of all assets which form the portfolio of mutual funds reduced by the value of all liabilities of the mutual fund.

Passive Benchmark is the strategy of management when the structure of the portfolio of assets repeat some index.

Rate of Return (RoR) is the gain or loss generated from an investment over a specified period of time.

Excess RoR is the difference between the rate of return and risk-free rate.

Risk-Adjusted RoR is the excess RoR divided by the risk measure.

Chapter 1

INTRODUCTION

Investments are of a great necessity for such transition economies as Belarus, Ukraine, and Russia. According to the economic theory, main source of investments in the economy is savings of households. As our world is very changeable and nobody has hundred percent confidence about tomorrow, people make savings to insure themselves against "bad days" in the future and to guarantee the desirable level of living after the retirement.

One way to transform savings into investments is stock market. Mechanism is rather simple. A firm which needs investment can issue shares. Households or financial intermediaries can buy them on the stock market. Mutual fund is one of the intermediaries between the stock market (and thus firms) and households.

Of course individual can invest money directly into stock market. But such strategy is associated with high transaction costs which include costs of getting information about prices of stocks and bonds, time to analyze and predict asset prices and fees to brokers and dealers (as not every person can participate in these markets). From that point of view mutual funds are very convenient for a "nonfinancial" person. It is because the investor can obtain a "portfolio" of assets while buying a share of mutual fund. The only thing he should do is to follow carefully the changes in the value of share.

In Russia the industry of collective investment develops with high speed. For example in 2000-2004 number of mutual funds and number of management companies have increased from 30 and 29 to 273 and 177 respectively. In 2004

the net asset value of mutual funds was 109.6 billions of RUR; comparatively at the end of 2000 it was 7.56 billions of RUR (Kapitan (2004, 2005))[1].

Industry of mutual funds is becoming very significant part of Russian economy. Thus according to Kovaleva and Blinov (2006) in the middle of 2005 the capitalization of NAV of all mutual funds compose 1 percent of Russian GDP what is 10 times more than in 2001. Nevertheless this growth rate is much lower than the potential growth of industry (Emelyanova, 2005). Main problem is that potential investors do not know how mutual funds are functioning though close to half of the population has heard about mutual funds as possibility to invest money.

Tofanyuk (2005) notes that in 2004 development of the industry of collective investment slowed down. She considers the main reason for that is the growing uncertainty and political risk. Most of experts, analysts and managers of funds have worried about this unexpected slowing down.

January of 2006 brings new surprise: people invested 2.7 billion roubles which was about one third of total amount of money invested in 2005 (Zaslavskaya, 2006; Ovchinnikov, 2006). Most of the companies have not been prepared to such inflow of buyers.

Such huge fluctuations in the inflow of money into the mutual funds create a great need in the deep analysis of factors which influences the decision of people to invest into or withdraw money from the mutual fund. First of all, this analysis is necessary for management companies as their fees depend on the NAV of assets under the management. Knowing factors which influence the net inflow of

[1] As one management company can create several mutual funds (for different types of investors) the number of management companies and number of mutual funds usually differ greatly.

money into the mutual fund management company can predict more carefully its profit.

Secondly, such analysis is very important for government because in Russia the pension reforms is providing now. Most of the pension funds are mutual funds just with higher restrictions on the assets they can invest into. Investments into pension funds have very much common with investments into other mutual funds. The only difference is that while investing into pension funds people pay more attention to reputation of managers and risk of investments.

Thus the main goal of this paper is to identify factors which determine the decision to invest money into or to withdraw money from mutual funds in Russia. The analysis will be concentrated on the open-end mutual funds which shares are traded every working day. It is done because the investments into interval and closed-end mutual funds are characterized by liquidity risk. And estimation of this risk requires special methodology based on analysis of exact structure of assets composing portfolio of assets in mutual fund. It is hard to obtain information on dynamics of structure. Moreover information on closed-end mutual funds is usually open only for investors not for public.

Chapter 2

LITERATURE REVIEW

Before examining the literature on factors which influence the individual decision to invest in mutual fund we should answer the question why industry of mutual funds exists and why investors put their money in them.

From the economic theory we know that people always maximize their utility while doing some actions. However maximization problem with risky assets it is not so simple. Markowitz (1952) argues that the decision whether to invest in such risky assets as stocks and bonds is complicated by the uncertainty about future returns which makes these assets risky. There is a trade-off between the rate of return and risk: the larger the uncertainty about future returns is the larger rate of return on investment should be; otherwise people will not invest. According to Markowitz (1952) people form their portfolio of assets in such way that they will have the most appropriate for them ratio of risk and return. And mutual funds embody this strategy in real life: when investor buys a share of mutual fund he "creates" the portfolio of assets with lower transaction costs than if he creates similar portfolio by himself.

Although creating mutual fund solves the problem of time-consuming management of individual portfolios and gives access to financial markets for common people mutual fund industry is subject to "principal-agent" problem. It is because actions and decisions of manager (not of investor) determine the rate of return on the investments and their riskiness because manager chooses the

assets to construct the mutual fund portfolio. The separating of the ownership and management creates the incentives for managers to gamble[2] as their fees usually depends on the size of funds under management (Berk and Green, 2002; Palomino and Uhlig, 2002). Thus investors should be very careful while choosing the fund to invest in. Their main problem is to find a mutual fund with managers which investors consider to be successful in the market.

In the 1990s and 2000s researchers examine how people choose the mutual funds. The issue rises because of huge development of mutual fund industry. Gruber (1996) mentions that in 1994 only commercial banks have had larger than mutual funds amount of assets under management. In 1998 asset under management of open-end mutual funds exceed the amount of deposits in the US economy (Zheng, 1999). Thus mutual funds have become a very important mechanism of transforming savings into investments. Fluctuations in net inflow of money into mutual funds have considerable impact on the economy.

Therefore the problem of determining the factors which influence the flow of money into the mutual funds has become of vital importance.

As mentioned above expected rate of return is one of the characteristics to which investor pays attention while investing into risky assets. The main question which researchers have tried to answer has been how investor can predict the future returns on his investments into a mutual fund.

[2] Problem of gambling will be explained later

In 1970 Carlson shows that past performance can be used to predict the future performance of the mutual funds. Though the persistence is not absolutely evident on the whole sample most of the funds with risk-adjusted rate of return above the median provide positive risk-adjusted return next period.

Brown and Goetzmann (1995) find out that the performance of the mutual funds is persistent across time using the large sample of mutual funds which includes the disappeared funds. It means that mutual funds' managers follow the investment strategy they use in the previous period. Persistence is strengthened mostly by the funds which follow the passive benchmark while managing assets in portfolio. Another reason why poorly managed mutual funds do not disappear immediately is failure of the market which cannot "fully discipline underperformers" (Brown and Goetzmann, 1995). They conclude that if previous performance has not been good investor should withdraw the money from this very mutual fund. If a mutual fund fails it will fail next period and investor will lose his money.

In paper of Goetzmann and Ibbolito (1994) prove the persistence in both the raw and risk-adjusted returns of mutual funds. And this persistence exists for time intervals from 1 month to 3 years.

Brown and Goetzmann (1995) find out that persistence phenomenon depends very much on the length of time period under study. Authors find out that in some years mutual fund performance switch the behavior to the opposite one. In their sample such a year has been 1987 when some of mutual funds with high recent returns become poorly performing.

Malkiel (1995) does the similar research. He expands the time period under investigation and finds out that two years further the upper bound of Brown and Goetzmann's sample (1990-1991) are also the years of reversals in funds' behavior.

Moreover it has been found that actively managed mutual funds very often provide negative risk-adjusted rate of return (Gruber, 1996; Wermers, 2000). At the same time empirical evidence shows that investors still put their money into good performers and withdraw money from poorly performing funds.

Are the investors irrational? The answer is "No". Different researches provider their explanations for such a phenomenon.

Gruber (1996) shows that the past performance helps the investors to learn much about the ability of managers to find stock that will perform well next period. Zheng (1999) test this Gruber's smart effect using the measure worked up by the Grinblatt and Titmann (1993) and proves that indeed people are able to select the mutual funds which will perform well using the information on past performance. Berk and Green (2002) find out the strong correlation between the past performance and inflow of money into mutual funds.

From researches mentioned above it follows that while deciding in which mutual fund to invest individuals should take into account the previous performance of this mutual fund.

All authors who try to investigate the process of decision-making of mutual fund investors prove the strong relationship between previous performance and flows into and from mutual funds (Chevalier and Ellison, 1995; Gruber, 1996; Sirri and Tuffano, 1998; Zheng, 1999; Berk and Green, 2002).

The previous performance can be estimated with not only previous rate of returns, but also with the volatility of the share value, ranking relative to other funds. Investors use the standard deviation (measure of volatility) of the rate of return on the mutual fund share as proxy management ability. Investors cannot observe actual risk of the portfolio as they do not know the exact structure of the assets of the mutual fund. It creates the incentive to gamble: managers know that investors use past performance choosing the fund to invest in, thus they have incentive to buy assets with higher rate of return and therefore with higher risk to tract new investors. However investors know about these incentives and do not invest into the mutual funds with the highest rate of return and thus with highest volatility (Palomino and Uhlig, 2002).

Along with previous performance investors take into account the size, the age of the fund and the fees paid to the management company. Sirri and Tuffano (1998) adds to the factors the complex size (log of all mutual funds under management of mutual fund's management company), marketing and distributional expenditures, media coverage. We can consider all this variables as proxies for the reputation of the managers of the mutual funds. People will put their money into the mutual fund if they consider that managers can create positive excess rate of return next periods. If managers confirm this reputation the net flow of resources into a mutual fund will be positive and size of mutual fund will grow. Thus large mutual funds are managed by the good managers (Berk and Green, 2002).

What concerns the Russian researches on that topic there is no such deep research as in foreign literature. On the web-site of National League of Management Companies (www.nlu.ru) there is a lot of articles about the development of the industry of Russian mutual funds but almost all of them speak only about the statistical figures (rate of returns, changes in number of mutual funds and management companies) (Kapitan, 2004; Kapitan, 2005; Biyanova, 2004).

As can be seen there is a huge amount of research investigating the determinants of mutual fund investors' behavior in the western markets though there is lack of research on the Russian industry on mutual funds.

Chapter 3

DATA DESCRIPTION

The period of analysis is January, 2002 – December, 2005 though industry has existed in Russia since 1996. It is because the data for risk-free rate and inflation are available on monthly basis only for these years.

The sample includes the 50 open-end mutual funds managed by the 20 management companies. The funds have been chosen from the list of mutual fund presented in databases of web-sites of National League of Management Companies (www.nlu.ru) and web-site Investfunds (www.investfunds.ru). The detailed list of funds is in Appendix 5.

The data on the fees, discounts, premiums, minimum initial and further investments, NAV, and value of the mutual fund share have been collected from the web-site of each management company. It has been compared to the data held on the web-site Investfunds to avoid mistakes in the figures.

The data on the rate of return has been calculated from the data on the value of the share of mutual fund according to the following formula:

$$RoR_t = \ln(V_t) - \ln(V_{t-1}) \quad (1)$$

where RoR_t is rate of return;

V_s is value of share of mutual fund at period s.

Data on Russian weighted average deposit rate and CPI have been taken from the web-site of Central Bank of Russia (www.cbr.ru) [3].

[3] http://www.cbr.ru/eng/statistics/credit_statistics/print.asp?file=interest_rates_05_e.htm
http://www.cbr.ru/eng/analytics/macro/print.asp?file=macro_05_e.htm

Chapter 3

MODEL

In this chapter I am going to explain in details the main factors which I consider very essential for analysis. And all this factors arise from very simple logic of investor. According to Modern Portfolio Theory when people invest money in any project or asset they are interested in two things: future returns (expected returns) and risk. The main point is to find out the mechanism with which investors predict these variables.

First of all, it is important to understand how investor can predict the rate of return on the share of mutual fund. Investor tries to predict these future returns using all current information. As have been shown in previous chapter the performance of mutual funds persists across time. If fund performs well in previous periods it will continue to perform well in the future. Thus investors can use the history of rate of returns on the share of a mutual fund as an indicator of future rate of returns and make their investment decisions.

At the same time the rate of return per se is not the very interest of investor. What really he values is how much he can earn over the risk-free rate, so called excess rate of return. With excess rate of return individual can measure his net profit from buying shares of that very mutual fund. As risk-free rate I use the growth rate of the index RTFS TR constructed by the Russian group AVK. This index is calculated as a value of a portfolio consisting of the government bonds of different issues and is usually used as a benchmark for investment into bonds.

Moreover persistence not only in raw but also in risk-adjusted returns have been proved (Sirri and Tuffano, 1998). To measure risk-adjusted return the Sharpe ratio will be used:

$$SR_t = \frac{AvExcRoR_{t,t-3}}{\sigma_{t,t-3}} \qquad (2)$$

where AvExcRoR – average excess rate of return over the previous three months,

σ – standard error of the rate of return of mutual fund during previous three month

In the papers of Brown and Goetzman (1995), Chevalier and Ellison (1995) authors usually assume that the period of one-two years is period which investor should take into account while investing in the mutual fund. Authors include in their regressions about 12 lags of monthly excess rate of return. In this paper the estimated period is only 2002-2005 and most of the funds have been operating only for 1-2 years. Thus there is no sense to include so many lags. According to Goetzmann and Ibbotson (1994) that persistence in risk-adjusted returns exists in time periods with length starting from 1 month. In the model three lags of Sharpe ratio will be included.

Not only previous performance but also reputation of managers can be used by investor while predicting the future returns (Berk and Green, 2002). People want good managers to control their investments. Thus they need some indicators of the management ability of managers. In this model the total Net Asset Value of

all mutual funds under the management of the management company and the period of functioning of that very mutual fund are proxies for reputation of mutual fund managers.

Investments into mutual funds have both direct and opportunity costs which investors take into account when making investments.

Sirri and Tuffano (1998) have shown that not only the past performance of the mutual fund but also other factors influence the decision of potential investors to buy or sell shares of mutual fund. Among these factors they mention the management expenditures. In model the fees of the management company and special depositary are included as well as premiums and discounts[4]. All management companies set these fees as a share of the assets composing the portfolio of the mutual fund. Usually this share is very small and does not differ across funds very much. Thus the influence may be not significant.

In Russia the main alternative of mutual funds is banks. Bank deposits are more popular among households because people know what bank is very well while mutual funds are new institutions for them. They know a little about mutual funds and banks seem much safer for people than mutual funds. That is why potential investors take into account the deposit rate buying the shares of the mutual fund. In the model I will use the weighted average deposit rate calculated

[4] Premia are added to the value of the share when investor buys share the share of mutual fund. Discounts are subtracted from the value of share when investor sells shares to management company. Both are expressed as percentage of value of mutual fund.

by the Central Bank of Russia[5] as a proxy for opportunity costs of investing into a mutual fund..

One more factor that can have rather big influence on the decision to invest and how much to invest is the minimum size of initial and further investment required by the rules of an investment fund. This numbers differs greatly among funds thus they might influence the amount of money invested into the fund. The hypothesis that levels of the minimal initial and further investments will be tested.

In western research the inflation has not been included into the models of investigating which factors influence the net flow of money into the mutual fund. However in Russia the years of high inflation have been not long time ago in Russia and people worry very much whether they will get positive real return on their investment.

Following model will be estimated:

$$NF_t = \alpha_0 + \alpha_1 \cdot SR_{t-1} + \alpha_2 \cdot SR_{t-2} + \alpha_3 \cdot SR_{t-3} + \alpha_4 \cdot r^d + \alpha_5 \cdot MaxFee + \alpha_6 \cdot Premium + \\ + \alpha_7 \cdot Discount + \alpha_8 \cdot \ln NAVtotal + \alpha_9 \cdot (\ln NavTotal)_{t-1} + \alpha_{10} \cdot NumOfYears + \alpha_{11} \cdot \pi^e + \\ + \alpha_{12} \cdot d\_type + \alpha_{13} \cdot MinInInv + \alpha_{14} \cdot MinFurInv + \varepsilon_t$$

where NF – net flow of assets into that very mutual fund;

SR_s – rate of return on the share of mutual fund in period s;

r^d – deposit rate;

MaxFee – fees of management company and special depositary (% of NAV of mutual fund);

[5] http://www.cbr.ru/statistics/credit_statistics/print.asp?file=interest_rates_05.htm

Premium – premium added to the value of share while buying share;

Discount – discount subtracted from the value of share while selling share;

lnNAVtotal – natural logarithms total amount of Net Asset Value of all mutual funds under management of the same management company;

NumOfYears – number of years mutual fund is functioning;

π^e – expected inflation in the future period;

d_type – dummy for type of the mutual fund;

MinInInv – minimum size of the initial investments into the mutual fund;

MinFurInv – minimum size of investments which is invested by people who are already the clients of that very fund;

The net flow of money into the mutual fund will be calculated using the approach of Sirri and Tuffano (1999):

$$NF_t = NAV_t - (1 + r) \cdot NAV_{t-1}$$

where NF is net inflow;

NAV is Net Asset Value;

r – rate of return on the share of mutual fund;

As Sirri and Tuffano (1999) argue using that using absolute level of net inflow is more appropriate "from the perspective of investors".

I assume adaptive expectations in my model.

$$\pi_t^e = \pi_{t-1}$$

Values of dummy for fund type:

1 – stock mutual fund;

2 – bonds mutual fund;

3 – mutual fund of compound investments;

4 – index mutual fund[6]

[6] it is fund which follows the structure of some market index

Chapter 5

ESTIMATION AND INTERPRETATION OF RESULTS

After running several tests we find out that model which gives the most appropriate estimators of parameters is fixed effect[7].

The level of minimum initial and further investments differ greatly among the mutual funds. However in the researches on the USA and Australian mutual funds the minimum level of investments is not usually included in the model. Thus I have checked the hypothesis that these variables can explain the part of changes in the dependent variables. The Wald test[8] shows that under 5 % level of confidence the coefficients of these variables are jointly insignificantly different from 0. Thus the level of minimum initial and further investments has almost no influence on the amount of money invested into the mutual fund.

As including these two variables into the model has not been based on any theoretical assumption they can be excluded from the model.

All further results are obtained for the following specification:

[7] The outputs from Stata on Hausman, Breusche-Pagan and F-test are in Appendix 1

[8] The output can be found in Appendix 2

$$NF_t = \alpha_0 + \alpha_1 \cdot SR_{t-1} + \alpha_2 \cdot SR_{t-2} + \alpha_3 \cdot SR_{t-3} + \alpha_4 \cdot r^d + \alpha_5 \cdot MaxFee + \alpha_6 \cdot Premium +$$
$$+ \alpha_7 \cdot Discount + \alpha_8 \cdot \ln NAVtotal + \alpha_9 \cdot (\ln NavTotal)_{t-1} + \alpha_{10} \cdot NumOfYears + \alpha_{11} \cdot \pi^e +$$
$$+ \alpha_{12} \cdot d\_type + \varepsilon_t$$

Tests again confirm that there is a fixed effect problem in the model[9]. Then the model has been tested for the presence of heteroscedasticity. Likelihood-ratio test[10] shows that there is no problem of heteroscedasticity[11]. Another problem which can be presented in the model is autocorrelation. Although the fixed effect solves the problem of autocorrelation which is due to the presence of the fund specific effect the residuals can correlate across time. The eyeball test shows that it is very low probability that there is an autocorrelation in residuals.

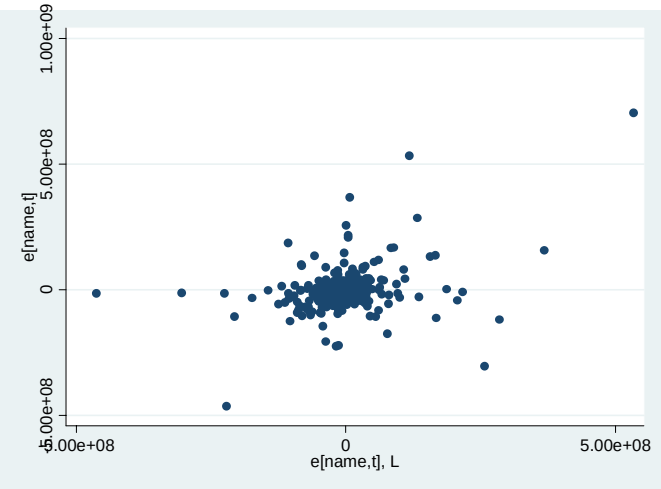

Figure 1. Error terms of the fixed effect regression

[9] Outputs from Stata are in the Appendix 3

[10] http://www.stata.com/support/faqs/stat/panel.html

[11] Output from Stata is in Appendix 4

The Table 1 contains the coefficients obtained with fixed effect method.

Table 1. Coefficients of model obtained using fixed effect method.

	Coefficient	P-value
SR_{t-1}	-1691200	0.165
SR_{t-2}	5035160	**0.000**
SR_{t-3}	37832	0.968
r^d	-195000000	0.638
MaxFee	-724000000	0.158
Premium	291000000	0.813
Discount	-741000000	0.238
lnNavTotal	64000000	**0.000**
$lnNavTotal_{t-1}$	-66100000	**0.000**
NumofYears	6804157	**0.013**
π^e	51200000	0.834
d_type	(dropped)	

With fixed effect we can not estimate the coefficients of variables which do not vary across time. Thus we can not obtain the coefficient of dummy for fund type. As a result the influence of the fund type on the net inflow of investments into the mutual fund is ambiguous. I will try to speculate a little about possible influence of fund type. Theoretically fund type determines the style of management of fund. Stocks are usually considered more risky than bonds and their prices are characterized by higher volatility. As a result the portfolios which contain higher share of stocks have also higher volatility. Thus each type of fund has specific threshold of Sharpe ratio which is in minds of people. For stocks mutual funds this ratio is the highest. If Sharpe ratio estimated falls below this value investor withdraw money from the fund. Thus the netinflow into mutual fund depends on the relative performance of the mutual fund.

Empirical results confirm the findings of previous research that the investors take into account the previous risk-adjusted returns while deciding to invest into the certain mutual fund. As can be seen when the Sharpe ration increases by 1 the net inflow of money into the mutual fund increases by 5 million Russian rubles two periods after. It is interesting that first lag of the Sharpe ratio has no significant influence on the net inflow of money. It can be explained by the fact that investments into mutual funds are usually long-term. Thus to predict future returns people uses longer history of previous returns to have clearer idea about the ability of managers to provide high level of returns. At the same time it is hard to explain the insignificance of the third lag of Sharpe ratio from that point of view.

Another reason for the little influence of the first and third lag of Sharpe ratio is too narrow time step in observations. It is possible that the influence of the other lags is captured to a greater extent by the second lag.

Two other factors which have significant influence on the netinflow of investments into the mutual funds are years of functioning and total NAV of all mutual funds under management. Their high influence can be explained by the fact that potential investors pay very much attention to the reputation of the managers. It is due to large scandals with different financial pyramids in Russia (for example MMM). As well these two variables can capture a part of impact which such factors as media coverage and advertisement have. The more active the marketing police of the management company are and the wider the agents' network is the more well-known for potential investors company is. As a result the amount of investors of mutual funds managed by this company increases and netinflow of money into funds grows.

The influence of the deposit rate is insignificant though the banks are the main competitors of the mutual funds. It can be explained that average raw rate of return (rate of return which is not adjusted to risk) is much higher than the monthly deposit rates. Moreover banks in Russia to make the competition with management companies usually organized the large financial groups which consolidate the bank, management company, company which provides broker services, insurance company. When client come to one of the financial enterprise within such a group he is proposed with all possible services provided by the whole group. Moreover shares of mutual fund are paperless securities and to hold them investor have to open special deposit for securities. For more convenience people who buy the shares of the mutual funds open the deposit in the bank in the same group as the management company. As a result the level of deposit rate has lower influence on the netinflow of money into the mutual funds.

The direct costs for investors which include the fees paid to the management company and special depositary, premiums and discounts do not have significant influence on the netinflow of money into the mutual fund. At the same time the researches on US mutual funds (Sirri and Tuffano, 1998) show that the fees influence the netinflow of money into the mutual funds very much. It can be explain by the fact that in Russia difference between fees and rate of returns is a very large number. For example in 2005 the average rate of return on mutual funds in Russia has been about 75% (Ovchinnikov, 2006) while the maximum amount of fees which can be paid to management company and depositary can not exceed the 10% of average annual NAV. Thus difference is six times more than the maximum level of fees. Most of management companies do not set their fees at the highest level, usually they are much lower. In the sample the average across time and funds maximum fees are at the level of 4.2%.

As can be seen from the table the expected inflation has insignificant coefficient. It is can be due to the fact that the monthly data has been examined. In sample the average monthly inflation has been 0.98%. It is very small number and it is hard for people to fill such a small growth of prices each month to adjust their investment decisions. Therefore the difference in inflation rate from month to month has a little influence on the decision of people to invest into the mutual funds. At the same time the average annual inflation for the period under investigation equals to 12.4% which is rather significant level of inflation. Thus more consolidated (at least quarterly) data should be used. However for such a research there is no sufficient time horizon from the point of view of available data.

Analyzing the empirical results we can conclude that in Russia the main purpose of investors is to find funds which managers can provide positive risk-adjusted rate of return next periods. Investors use the previous performance and reputation of management company measured by NAV under management and years of functioning of mutual fund to evaluate the ability of managers to perform good next periods. The inflation, direct and opportunity costs are of less importance for investors.

Chapter 6

CONCLUSIONS

In Russia mutual funds industry is one of the most rapidly developing sectors of economy. In four years the share of the capitalization of NAV of all mutual funds in Russian GDP has increased tenfold from 0.1% in 2001 to 1% in 2005. In 2000-2004 number of mutual funds and number of management companies have increased from 30 and 29 to 273 and 177 respectively. Thus the mutual funds form the significant part of Russian economy. It becomes more and more important to investigate

In 1990s and 2000s a lot of research has been done on the investigation of the mutual funds industry. Authors examine how investors choose the mutual funds to invest into, how fees and reputation influence their decision.

In Russia only in recent years when the mutual funds behave unexpectedly the analytics and managers of mutual funds realize that it is very important to find factors which influence the choice by investors.

Results of the empirical testing the initial model shows that the most important factors which determine the netinflow of money into the Russian mutual funds are previous performance measured by the risk-adjusted rate of return and such proxies of the reputation of managers as total amount of NAV under management of management company and number of years of functioning. Other variables including inflation, direct and opportunity costs do not show the

significant influence on the choice of investors. Thus the most important issue for investor is the ability of managers to provide positive returns. Therefore to attract more investors management companies should have more active advertising, enlarge their agents' network and to develop the strategies of portfolio management which help to perform well.

The results of the research are not absolutely representative because of the short period under investigation and level of consolidation of data. Four years is a very short period for such an industry. Moreover about two thirds of the sample are funds which have been functioning for less than one and a half year. Managers of funds do not have enough experience of management of such a large portfolios as mutual funds. It causes the problems of predicting the ability of managers of such funds to perform well. Such further research requires more consolidated data with longer history.

The sample under investigation includes only open-end mutual funds. To have more reliable estimators it is better to include interval funds. It requires the methodology to estimate the liquidity risk for investors and the costs caused by the problem of gambling.

BIBLIOGRAPHY

Berk, J., Green, R., (2002), 'Mutual fund flows and performance in rational markets,' NBER Working Paper, No. 9275, http://www.nber.org/papers/W9275.pdf;

Biyanova N. (2004) 'Bum PIFov', Gaseta, http://www.nlu.ru/library/list/detail/index.php?ID=5710&phrase_id=20868;

Brown, S., Goetzmann, W., 'Performance Persistence', The Journal of Finance, Vol. 50, No. 2, 1995, pp. 679-698;

Carlson, R., (1970), 'Aggregate performance of mutual funds, 1948-1967', The Journal of Financial and Quantative Analysis, Vol. 5, No 1, pp. 1-32;

Chevalier, J., Ellison G., (1995), 'Risk Taking by Mutual Funds as a Response to Incentives,' NBER Working Paper, No. 5234, http://www.jstor.org/cgi-bin/jstor/printpage/00223808/di980629/98p0121i/0.pdf?backcontext=page&dowhat=Acrobat&config=jstor&userID=c3e68289@eerc.kiev.ua/01cce4403500501aa96fa&0.pdf;

Emelyanova, T., (2005) 'Prostoj smertnyy mozhet pouchastvovat v natsionalnoj ekonomike cherez paevoj fond', Nezavisimaya gazeta, 10/03/2005 http://www.nlu.ru/library/list/detail/index.php?ID=10048&phrase_id=158763;

Goetzmann, W., Ibbotson, R., (1994), 'Do winner repeat? Patterns in mutual fund performance', Journal of Portfolio Management, No 20, pp. 9-17;

Grinblatt, M., Titmann, S., (1993) 'Performance measurement without benchmarks: an examination of mutual fund retruns', Journal of Business, No 6, pp. 47-68;

Gruber, M., (1996) 'Another Puzzle: the Growth in Actively Managed Mutual Funds,' The Journal of Finance, Vol. 51, No. 3, pp. 783-810;

Interview of Dmitriy Retunskyh to National League of Management Companies 'Политические риски будут расти, а инвестиционная активность – снижаться' 01/12/2005 http://www.nlu.ru/library/list/detail/index.php?ID=9233;

Kapitan, M., 'Paevye fondy v 2003 godu', Investitsii Plus, 02/25/2004 http://www.nlu.ru/library/list/detail/index.php?ID=6655&phrase_id=158381;

Kapitan, M., 'PIFy v 2004 godu', Investitsii Plus, 03/11/2005 http://www.nlu.ru/library/list/detail/index.php?ID=9453&phrase_id=158562;

Kovaleva, V., Blinov, A., (2006), 'My stoim gorazdo bolshe', Expert (Ukraine), N6;

Law of Russia 'On the Mutual Funds' №156-ФЗ. November 11, 2001;
Malkiel, B. (1995), 'Returns from investing in equity mutual funds 1971-1991', Journal of Finance, No 50, pp. 549-572;
Markowitz, H., (1952), 'Portfolio Selection', The Journal of Finance, Vol. 7, No. 1, pp. 77-91;
Ovchinnikov, A., (2006), 'Za chto rossiyane polyubili paevye fondy?', Komsomolskaya Pravda, 02/14/2006 http://www.nlu.ru/library/list/detail/index.php?ID=10373&phrase_id=228258 ;
Palomino, F., Uhlig, H., 'Should Smart Investors Buy Funds with High Returns in the Past?', 2002, http://www.wiwi.hu-berlin.de/wpol/papers/f0202c.pdf;
Sharpe, W., (1964), 'Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk,' Journal of Finance, 19, pp. 425-442;
Sharpe, W., Alexander, G., Baly, J., (2003). 'Investitsii', Infra-M, Moscow;
Sirri, E., Tufano, P., 'Costly Search and Mutual Fund Flows,' The Journal of Finance, Vol. 53, No. 5, 1998, pp. 1589-1622;
Tofanyuk, E., (2005), 'Vkladchiki utrachivayut interes k PIFam', RBC daily http://www.nlu.ru/library/list/detail/index.php?ID=9764&phrase_id=158761 ;
Wermer, R., (2000), 'Mutual fund performance: and empirical decomposition into stock-picking talent, style, transaction costs, and expences', Journal of Finance, Vol. 55, No. 4, pp. 1655-1695
Zaslavskaya, O., (2006), 'PIFy okazalis ne gotovy ʌ naplyvu klientov', Finansovye izvestiya, 02/15/2006 http://www.nlu.ru/library/list/detail/index.php?ID=10377&phrase_id=228255 ;
Zheng, L., 'Is Money Smart? A Study of Mutual Fund Investors' Fund Selection Ability,' The Journal of Finance, Vol. 54, No. 3, 1999, pp. 901-933;

APPENDIX 1.

```
. xtreg netinflow l.sharpe l2.sharpe l3.sharpe depositrate feesmax premia disco
> unt l.inflation typeoffund yearsoffunction
> ing l.lnnavtotal lnnavtotal mininitialinvestments minfurtherinvesments

Random-effects GLS regression                   Number of obs      =      1288
Group variable (i): name                        Number of groups   =        50

R-sq:  within  = 0.0503                         Obs per group: min =        11
       between = 0.5501                                        avg =      25.8
       overall = 0.1014                                        max =        45

Random effects u_i ~ Gaussian                   Wald chi2(14)      =    143.65
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
   netinflow |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      sharpe |
         L1. |   -1970380    1194489    -1.65   0.099     -4311536    370776.8
         L2. |    4913770    1210407     4.06   0.000      2541417     7286123
         L3. |  -46851.03   931217.2    -0.05   0.960     -1872003     1778301
 depositrate |  -1.19e+08   3.38e+08    -0.35   0.725    -7.82e+08    5.44e+08
     feesmax |   1.07e+08   7.36e+07     1.45   0.148    -3.77e+07    2.51e+08
      premia |  -3.79e+08   2.47e+08    -1.53   0.125    -8.63e+08    1.05e+08
    discount |   2.82e+08   2.04e+08     1.39   0.166    -1.17e+08    6.82e+08
   inflation |
         L1. |  -2.65e+07   2.40e+08    -0.11   0.912    -4.98e+08    4.45e+08
  typeoffund |   -1068289    1538572    -0.69   0.487     -4083835     1947258
yearsoffun~g |    3257516   745887.4     4.37   0.000      1795604     4719429
  lnnavtotal |
         L1. |  -6.60e+07    9136507    -7.23   0.000    -8.40e+07   -4.81e+07
         --. |   7.09e+07    9202739     7.71   0.000     5.29e+07    8.90e+07
mininitial~s |   -13.0525   11.07107    -1.18   0.238    -34.75139    8.646389
minfurther~s |   -5.50752   35.35865    -0.16   0.876    -74.80921    63.79417
       _cons |  -9.87e+07   2.68e+07    -3.68   0.000    -1.51e+08   -4.62e+07
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |   45284037
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. est store random

. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects:

        netinflow[name,t] = Xb + u[name] + e[name,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                 ---------+-----------------------------
                netinflow |   2.30e+15       4.79e+07
                        e |   2.05e+15       4.53e+07
                        u |          0              0
```

```
        Test:   Var(u) = 0
                                chi2(1) =     7.08
                            Prob > chi2 =     0.0078

. xtreg netinflow l.sharpe l2.sharpe l3.sharpe depositrate feesmax premia disco
> unt l.inflation typeoffund yearsoffunction
> ing l.lnnavtotal lnnavtotal mininitialinvestments minfurtherinvesments, fe

Fixed-effects (within) regression               Number of obs      =      1288
Group variable (i): name                        Number of groups   =        50

R-sq:  within  = 0.0632                         Obs per group: min =        11
       between = 0.0572                                        avg =      25.8
       overall = 0.0243                                        max =        45

                                                F(13,1225)         =      6.35
corr(u_i, Xb)  = -0.8324                        Prob > F           =    0.0000

------------------------------------------------------------------------------
   netinflow |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      sharpe |
         L1. |   -1703037    1217704    -1.40   0.162     -4092054    685980.7
         L2. |    4986792    1217426     4.10   0.000      2598320     7375263
         L3. |   24398.26   940112.1     0.03   0.979     -1820010     1868806
 depositrate |  -1.99e+08   4.14e+08    -0.48   0.631    -1.01e+09    6.13e+08
     feesmax |  -6.71e+08   5.13e+08    -1.31   0.191    -1.68e+09    3.35e+08
      premia |   2.03e+07   1.26e+09     0.02   0.987    -2.45e+09    2.49e+09
    discount |  -7.90e+08   6.28e+08    -1.26   0.208    -2.02e+09    4.41e+08
   inflation |
         L1. |   2.81e+07   2.45e+08     0.11   0.908    -4.52e+08    5.08e+08
  typeoffund |  (dropped)
yearsoffun~g |    6123372    2774902     2.21   0.028     679284.3    1.16e+07
  lnnavtotal |
         L1. |  -6.42e+07   1.03e+07    -6.23   0.000    -8.45e+07   -4.40e+07
         --. |   6.26e+07   1.02e+07     6.14   0.000     4.26e+07    8.26e+07
mininitial~s |  -100.3404   133.3701    -0.75   0.452    -361.9996    161.3188
minfurther~s |  -221.2561   333.3752    -0.66   0.507    -875.3057    432.7935
       _cons |   6.83e+07   6.49e+07     1.05   0.293    -5.91e+07    1.96e+08
-------------+----------------------------------------------------------------
     sigma_u |   31120387
     sigma_e |   45284037
         rho |  .32078144   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(49, 1225) =     1.45            Prob > F = 0.0238

. est store fixed

. hausman fixed random

Note: the rank of the differenced variance matrix (10) does not equal the numbe
> r of coefficients being tested (13); be
        sure this is what you expect, or there may be problems computing the te
> st.  Examine the output of your estimators
        for anything unexpected and possibly consider scaling your variables so
>  that the coefficients are on a similar
        scale.

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+----------------------------------------------------------------
```

```
    L.sharpe |    -1703037     -1970380        267343.1          236641
   L2.sharpe |     4986792      4913770        73021.87          130548
   L3.sharpe |    24398.26    -46851.03        71249.29        129016.8
 depositrate |   -1.99e+08    -1.19e+08       -7.98e+07        2.38e+08
     feesmax |   -6.71e+08     1.07e+08       -7.78e+08        5.08e+08
      premia |    2.03e+07    -3.79e+08        3.99e+08        1.23e+09
    discount |   -7.90e+08     2.82e+08       -1.07e+09        5.93e+08
 L.inflation |    2.81e+07    -2.65e+07        5.46e+07        4.55e+07
yearsoffun~g |     6123372      3257516         2865856         2672777
L.lnnavtotal |   -6.42e+07    -6.60e+07         1814056         4795314
  lnnavtotal |    6.26e+07     7.09e+07        -8337934         4376710
mininitial~s |   -100.3404     -13.0525       -87.28788        132.9098
minfurther~s |   -221.2561     -5.50752       -215.7486        331.4948
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                 chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       25.27
                Prob>chi2 =      0.0048
                (V_b-V_B is not positive definite)
```

APPENDIX 2.

```
. xtreg netinflow l.sharpe l2.sharpe l3.sharpe depositrate feesmax premia disco
> unt l.inflation typeoffund yearsoffunction
> ing l.lnnavtotal lnnavtotal mininitialinvestments minfurtherinvesments, fe

Fixed-effects (within) regression               Number of obs      =      1288
Group variable (i): name                        Number of groups   =        50

R-sq:  within  = 0.0632                         Obs per group: min =        11
       between = 0.0572                                        avg =      25.8
       overall = 0.0243                                        max =        45

                                                F(13,1225)         =      6.35
corr(u_i, Xb)  = -0.8324                        Prob > F           =    0.0000

------------------------------------------------------------------------------
   netinflow |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      sharpe |
         L1. |   -1703037    1217704    -1.40   0.162     -4092054    685980.7
         L2. |    4986792    1217426     4.10   0.000      2598320     7375263
         L3. |   24398.26   940112.1     0.03   0.979     -1820010     1868806
 depositrate |  -1.99e+08   4.14e+08    -0.48   0.631    -1.01e+09    6.13e+08
     feesmax |  -6.71e+08   5.13e+08    -1.31   0.191    -1.68e+09    3.35e+08
      premia |   2.03e+07   1.26e+09     0.02   0.987    -2.45e+09    2.49e+09
    discount |  -7.90e+08   6.28e+08    -1.26   0.208    -2.02e+09    4.41e+08
   inflation |
         L1. |   2.81e+07   2.45e+08     0.11   0.908    -4.52e+08    5.08e+08
  typeoffund |  (dropped)
yearsoffun~g |    6123372    2774902     2.21   0.028     679284.3    1.16e+07
  lnnavtotal |
         L1. |  -6.42e+07   1.03e+07    -6.23   0.000    -8.45e+07   -4.40e+07
         --. |   6.26e+07   1.02e+07     6.14   0.000     4.26e+07    8.26e+07
mininitial~s |  -100.3404   133.3701    -0.75   0.452    -361.9996    161.3188
minfurther~s |  -221.2561   333.3752    -0.66   0.507    -875.3057    432.7935
       _cons |   6.83e+07   6.49e+07     1.05   0.293    -5.91e+07    1.96e+08
-------------+----------------------------------------------------------------
     sigma_u |   31120387
     sigma_e |   45284037
         rho |  .32078144   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(49, 1225) =     1.45            Prob > F = 0.0238

. test mininitialinvestments minfurtherinvesments

 ( 1)  mininitialinvestments = 0
 ( 2)  minfurtherinvesments = 0

       F(  2,  1225) =    1.60
            Prob > F =    0.2032
```

APPENDIX 3.

```
. xtreg netinflow l.sharpe l2.sharpe l3.sharpe depositrate feesmax premia disco
> unt l.inflation typeoffund yearsoffunction
> ing l.lnnavtotal lnnavtotal

Random-effects GLS regression                   Number of obs      =      1288
Group variable (i): name                        Number of groups   =        50

R-sq:  within  = 0.0507                         Obs per group: min =        11
       between = 0.5326                                        avg =      25.8
       overall = 0.1003                                        max =        45

Random effects u_i ~ Gaussian                   Wald chi2(12)      =    142.08
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
   netinflow |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      sharpe |
         L1. |   -2003804    1194010    -1.68   0.093     -4344021    336412.1
         L2. |    4888828    1210042     4.04   0.000      2517190     7260466
         L3. |  -53954.91   931058.6    -0.06   0.954     -1878796     1770886
 depositrate |  -1.25e+08   3.38e+08    -0.37   0.711    -7.88e+08    5.38e+08
     feesmax |   7.87e+07   6.86e+07     1.15   0.251    -5.58e+07    2.13e+08
      premia |  -3.01e+08   2.39e+08    -1.26   0.208    -7.69e+08    1.67e+08
    discount |   2.53e+08   2.02e+08     1.25   0.211    -1.43e+08    6.49e+08
   inflation |
         L1. |  -2.38e+07   2.40e+08    -0.10   0.921    -4.95e+08    4.47e+08
  typeoffund |   -1157037    1532468    -0.76   0.450     -4160619     1846545
yearsoffun~g |    3451841   728432.8     4.74   0.000      2024139     4879543
  lnnavtotal |
         L1. |  -6.65e+07    9123882    -7.29   0.000    -8.44e+07   -4.86e+07
         --. |   7.10e+07    9194920     7.72   0.000     5.29e+07    8.90e+07
       _cons |  -8.96e+07   2.56e+07    -3.50   0.000    -1.40e+08   -3.94e+07
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |   45306016
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. est store random

. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects:

        netinflow[name,t] = Xb + u[name] + e[name,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                 ---------+-----------------------------
                netinflow |   2.30e+15       4.79e+07
                        e |   2.05e+15       4.53e+07
                        u |          0              0

        Test:   Var(u) = 0
```

```
                          chi2(1) =     8.70
                        Prob > chi2 =     0.0032

. xtreg netinflow l.sharpe l2.sharpe l3.sharpe depositrate feesmax premia disco
> unt l.inflation typeoffund yearsoffunction
> ing l.lnnavtotal lnnavtotal, fe

Fixed-effects (within) regression               Number of obs      =      1288
Group variable (i): name                        Number of groups   =        50

R-sq:  within  = 0.0607                         Obs per group: min =        11
       between = 0.1157                                        avg =      25.8
       overall = 0.0391                                        max =        45

                                                F(11,1227)         =      7.21
corr(u_i, Xb)  = -0.7072                        Prob > F           =    0.0000

------------------------------------------------------------------------------
   netinflow |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      sharpe |
         L1. |   -1691200    1218277    -1.39   0.165     -4081337    698937.6
         L2. |    5035160    1217695     4.13   0.000      2646165     7424155
         L3. |   37831.67   940065.2     0.04   0.968     -1806482     1882145
 depositrate |  -1.95e+08   4.14e+08    -0.47   0.638    -1.01e+09    6.17e+08
     feesmax |  -7.24e+08   5.12e+08    -1.41   0.158    -1.73e+09    2.82e+08
      premia |   2.91e+08   1.23e+09     0.24   0.813    -2.12e+09    2.70e+09
    discount |  -7.41e+08   6.27e+08    -1.18   0.238    -1.97e+09    4.90e+08
   inflation |
         L1. |   5.12e+07   2.44e+08     0.21   0.834    -4.28e+08    5.30e+08
  typeoffund |  (dropped)
yearsoffun~g |    6804157    2742229     2.48   0.013      1424181    1.22e+07
  lnnavtotal |
         L1. |  -6.61e+07   1.03e+07    -6.44   0.000    -8.62e+07   -4.60e+07
         --. |   6.40e+07   1.02e+07     6.30   0.000     4.41e+07    8.39e+07
       _cons |   6.85e+07   6.49e+07     1.06   0.292    -5.89e+07    1.96e+08
-------------+----------------------------------------------------------------
     sigma_u |   20902472
     sigma_e |   45306016
         rho |  .17549902   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(49, 1227) =     1.42            Prob > F = 0.0317

. est store fixed

. hausman fixed random

Note: the rank of the differenced variance matrix (10) does not equal the numbe
> r of coefficients being tested (11); be
       sure this is what you expect, or there may be problems computing the te
> st.  Examine the output of your estimators
       for anything unexpected and possibly consider scaling your variables so
>  that the coefficients are on a similar
       scale.

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+----------------------------------------------------------------
    L.sharpe |    -1691200     -2003804        312604.6        241950.4
   L2.sharpe |     5035160      4888828        146331.6        136311.6
   L3.sharpe |    37831.67    -53954.91        91786.58        129817.2
 depositrate |   -1.95e+08    -1.25e+08       -6.97e+07        2.38e+08
```

```
     feesmax |   -7.24e+08     7.87e+07       -8.02e+08        5.08e+08
      premia |    2.91e+08    -3.01e+08        5.92e+08        1.20e+09
    discount |   -7.41e+08     2.53e+08       -9.94e+08        5.94e+08
 L.inflation |    5.12e+07    -2.38e+07        7.49e+07        4.31e+07
yearsoffun~g |     6804157      3451841         3352317         2643710
L.lnnavtotal |   -6.61e+07    -6.65e+07        429420.7         4709602
  lnnavtotal |    6.40e+07     7.10e+07       -6939048         4319720
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                 chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       20.24
               Prob>chi2 =      0.0271
               (V_b-V_B is not positive definite)

. xtreg netinflow l.sharpe l2.sharpe l3.sharpe depositrate feesmax premia disco
> unt l.inflation typeoffund yearsoffunction
> ing l.lnnavtotal lnnavtotal, fe

Fixed-effects (within) regression               Number of obs      =      1288
Group variable (i): name                        Number of groups   =        50

R-sq:  within  = 0.0607                         Obs per group: min =        11
       between = 0.1157                                        avg =      25.8
       overall = 0.0391                                        max =        45

                                                F(11,1227)         =      7.21
corr(u_i, Xb)  = -0.7072                        Prob > F           =    0.0000

------------------------------------------------------------------------------
   netinflow |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      sharpe |
         L1. |   -1691200    1218277    -1.39   0.165     -4081337    698937.6
         L2. |    5035160    1217695     4.13   0.000      2646165     7424155
         L3. |   37831.67   940065.2     0.04   0.968     -1806482     1882145
 depositrate |  -1.95e+08   4.14e+08    -0.47   0.638    -1.01e+09    6.17e+08
     feesmax |  -7.24e+08   5.12e+08    -1.41   0.158    -1.73e+09    2.82e+08
      premia |   2.91e+08   1.23e+09     0.24   0.813    -2.12e+09    2.70e+09
    discount |  -7.41e+08   6.27e+08    -1.18   0.238    -1.97e+09    4.90e+08
   inflation |
         L1. |   5.12e+07   2.44e+08     0.21   0.834    -4.28e+08    5.30e+08
  typeoffund |  (dropped)
yearsoffun~g |    6804157    2742229     2.48   0.013      1424181    1.22e+07
  lnnavtotal |
         L1. |  -6.61e+07   1.03e+07    -6.44   0.000    -8.62e+07   -4.60e+07
         --. |   6.40e+07   1.02e+07     6.30   0.000     4.41e+07    8.39e+07
       _cons |   6.85e+07   6.49e+07     1.06   0.292    -5.89e+07    1.96e+08
-------------+----------------------------------------------------------------
     sigma_u |   20902472
     sigma_e |   45306016
         rho |  .17549902   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(49, 1227) =     1.42            Prob > F = 0.0317
```

APPENDIX 4.

```
. xtgls netinflow l.sharpe l2.sharpe l3.sharpe depositrate feesmax premia disc
> ount l.inflation typeoffund yearsoffunctio
> ning l.lnnavtotal lnnavtotal, igls panels(heteroskedastic)
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   no autocorrelation

Estimated covariances      =        50          Number of obs      =      1288
Estimated autocorrelations =         0          Number of groups   =        50
Estimated coefficients     =        13          Obs per group: min =        11
                                                               avg =     25.76
                                                               max =        45
                                                Wald chi2(12)      =     53.17
Log likelihood             =  -22567.2          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
   netinflow |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      sharpe |
         L1. |  -42217.04   54038.28    -0.78   0.435    -148130.1    63696.04
         L2. |   96206.27   54156.82     1.78   0.076    -9939.142    202351.7
         L3. |    26612.4   35038.53     0.76   0.448    -42061.85    95286.66
 depositrate |   2.92e+07   1.88e+07     1.55   0.121     -7741005    6.61e+07
     feesmax |   1.22e+07    5613744     2.18   0.029      1229309    2.32e+07
      premia |   1.97e+07   1.43e+07     1.37   0.169     -8365185    4.77e+07
    discount |  -3.34e+07   1.21e+07    -2.77   0.006    -5.70e+07    -9786006
   inflation |
         L1. |   -4420949    9024408    -0.49   0.624    -2.21e+07    1.33e+07
  typeoffund |   109733.1   80496.51     1.36   0.173    -48037.18    267503.3
yearsoffun~g |  -126688.8   84895.95    -1.49   0.136    -293081.7    39704.24
  lnnavtotal |
         L1. |   -2660705   483876.9    -5.50   0.000     -3609087    -1712324
         --. |    2683750   490726.9     5.47   0.000      1721943     3645557
       _cons |   -1775410    1055577    -1.68   0.093     -3844303    293482.3
------------------------------------------------------------------------------
. local df = e(N_g) - 1

. lrtest hetero . , df(`df')
(log likelihoods of null models cannot be compared)
Likelihood-ratio test                                 LR chi2(49) =      0.00
(Assumption: . nested in hetero)                      Prob > chi2 =    1.0000
```

APPENDIX 4.

Agana

1. Alor - indeks MMVB
Pravila http://www.agana.ru/main/pifs/alor/rules
1. Alor – Fond regional'nyh akcii
Pravila http://www.agana.ru/main/pifs/region/rules
2. Alor – Ekvilibrium
Pravila http://www.agana.ru/main/pifs/equilibrium/rules
4. Alor – Ekstrim
Pravila http://www.agana.ru/main/pifs/extreme/rules
5. Molodezhnyi
Pravila http://www.agana.ru/main/pifs/youth/rules
AVK Dvorcovaya ploshad'
6. AVK – Region
Pravila http://www.fund.avk.ru/fund.nsf/v1/funds_rules?OpenDocument&fund=25
7. AVK – fond akcii
Pravila http://www.fund.avk.ru/fund.nsf/v1/funds_rules?OpenDocument&fund=35
4. AVK – fond privilegirovannyh akcii
Pravila http://www.fund.avk.ru/fund.nsf/v1/funds_rules?OpenDocument&fund=34
5. AVK – fond svyazi i kommunikacii
Pravila http://www.fund.avk.ru/fund.nsf/v1/funds_rules?OpenDocument&fund=29
6. AVK – fond toplivno-energeticheskogo kompleksa
Pravila http://www.fund.avk.ru/fund.nsf/v1/funds_rules?OpenDocument&fund=31
7. AVK – fond gos cennyh bumag
Pravila http://www.fund.avk.ru/fund.nsf/v1/funds_rules?OpenDocument&fund=26
8. AVK – fond korporativnyh obligacii
Pravila http://www.fund.avk.ru/fund.nsf/v1/funds_rules?OpenDocument&fund=28
9. AVK – fond likvidnyh aktivov
Pravila http://www.fund.avk.ru/fund.nsf/v1/funds_rules?OpenDocument&fund=27
Asterkom
10. Asterkom – fond sbalansirovannyi
Pravila http://www.astercom.ru/sbal.html
Invest Menedzhment
11. Tol'yatti – Invest
Pravila http://www.invest-mng.ru/founds/found1/rules/index.shtml
12. Tol'yatti – Invest akcii
Pravila http://www.invest-mng.ru/founds/found2/Prav_TIA/index.shtml
13. Tol'yatti – Invest obligacii
Pravila http://www.invest-mng.ru/founds/found3/pravila_t_i_o/index.shtml
Intrast
14. Intrast Fond akcii
Pravila http://www.intrast.ru/benefits/pif/pif_stock
KIT Finans
15. KIT – Rossiiskaya neft'
Pravila http://www.cit-funds.ru/?p=11
16. KIT – Rossiiskaya elektroenergetika
Pravila http://www.cit-funds.ru/?p=10
17. KIT – Rossiiskie telekommunikacii
Pravila http://www.cit-funds.ru/?p=12
18. KIT – Fond akcii
Pravila http://www.cit-funds.ru/?p=9
19. KIT – Fond obligacii
Pravila http://www.cit-funds.ru/?p=7#rules
20. KIT – Fond sbalansirovannyi
Pravila http://www.cit-funds.ru/?p=8#rules
Kepital Esset Menedzhment

21. Bazovyi
Pravila http://www.casm.ru/ShowContent.asp?id=fond1_rules
22. Universal'nyi
Pravila http://www.casm.ru/ShowContent.asp?id=fond2_rules
Maksvell Esset Menedzhment
23. Maksvell Kapital
Pravila http://www.maxwell.ru/index_1_1_5.shtml
Metropol'
24. Metropol' Afina
Pravila http://pif.metropol.ru/afina/fund_rules/index.wbp?pageid=48fee415-f11e-4318-bac7-42cf34bbc94c
25. Metropol' Zevs
Pravila http://pif.metropol.ru/zevs/fund_rules/index.wbp?pageid=aff146c8-6ca8-4ae9-abaf-668d3b9d23ff
26. Metropol' Zolotoe runo
Pravila http://pif.metropol.ru/golden_fleece/fund_rules/index.wbp?pageid=3a3f0bf0-2635-42df-a8c2-09145e198c18
OLMA-FINANS
27. Olma fond akcii
Pravila http://www.olma-f.ru/?what=fondakciy&toc=3
28. Olma fond smeshannyh investicii
Pravila http://www.olma-f.ru/?what=fondsmeshinv&toc=4
Otkrytie
29. Otkrytie akcii
Pravila http://www.natam.ru/p_f_akcii_pravila.php
30. Otkrytie obligacii
Pravila http://www.natam.ru/p_f_obligacii_pravila.php
Pallada
31. Pallada – GCB
Pravila http://www.pallada.ru/funds/common.php?fund_id=4#amendments
32. Pallada K
Pravila http://www.pallada.ru/funds/common.php?fund_id=6#rules
33. Pallada Rezerv
Pravila http://www.pallada.ru/funds/common.php?fund_id=99
Region Esset Menedzhment
34. Region fond akcii
Pravila http://www.region.ru/AssetsManagement/Services/PIF/Stock_Sare/_SareFund_/Rules/
Regiongazfinans
35. Regiongazfinans – fond sbalansirovannyi
Pravila http://www.uk-rgf.ru/funds/tactics/rules/
36. Taktika
Pravila http://www.uk-rgf.ru/funds/tactics/rules/
RTK-Invest
37. Telekom-garantiya
Pravila http://www.rtkinvest.ru/img/files/rules_01.pdf
Troika dialog
38. Dobrynya Nikitich
Pravila http://www.am.troika.ru/rus/Mutual_Funds/Mutual_Funds/Dobrynia_Nikitich/index.wbp
39. Druzhina
Pravila http://www.am.troika.ru/rus/Mutual_Funds/Mutual_Funds/Druzhina/index.wbp
40. Il'ya Muromec
Pravila http://www.am.troika.ru/rus/Mutual_Funds/Mutual_Funds/Ilya_Muromets/index.wbp
41. Sadko
Pravila http://www.am.troika.ru/rus/Mutual_Funds/Mutual_Funds/Sadko/index.wbp
UK Rosbanka
42. Granat
Pravila http://www.rosbankmc.ru/index?id=78

43. Sapfir
Pravila http://www.rosbankmc.ru/index?id=77
Univer
44. Univer – fond smeshannyh investicii
Pravila http://www.univer.ru/?cn=299
Elbi-Trast
45. Nakopitel'nyi
Pravila http://www.elby.spb.ru/
Energokapital
46. Kapital
Pravila http://www.energ.ru/capital.html