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Economic Impact of Capital Flight from Russia and its Institutional Context: Why Capital Controls cannot be a Part of a Pro-Growth Policy.

by

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Economic Impact of Capital Flight from Russia and its Institutional Context: Why Capital Controls cannot be a Part of a Pro-Growth Policy.
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Abstract

The research presented in this paper is undertaken in response to the debate on capital flight from Russia. This debate usually involves discussion of its determinants but misses the question of its ultimate effects on the economy. Lack of understanding of the economic nature of capital flight and of its institutional context leads to numerous calls for a policy response, such as stricter capital controls, which are not grounded in any theory or empirical studies, but at the same time are not opposed on theoretical grounds, with only ideological or technical arguments employed at the very best. The purpose of the paper is to examine capital flight from Russia within the institutional environment in which it occurs and to establish whether this capital flight has detrimental effect on the economy. New Institutional Economics approach is adopted to argue that in Russia's case capital flight might be considered not just a consequence, as some researchers have argued earlier, but also an optimal solution to the institutional deficiencies with its economic role being neutral. To support the validity of this claim modified Granger non-causality test is used to determine whether capital flight dynamics have a causal effect on that of the interest rate differential and vice versa, that is to test whether price mechanism is not working. Rethinking the nature and the economic impact of capital flight allows postulating that within the existing institutional context the observed capital flight is a normal economic process which per se does not require any policy response and restricting capital flight by imposing capital controls cannot be an element of a pro-growth policy, as it would instead lead to boom-burst sort of growth.

JEL No.: E61, F21, G18, O16, O24, O52.
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[*] The views expressed in this paper are those of the author and do not necessarily represent the official position of the Leontief Center.

1 Introduction

Sustainable economic development is contingent upon policies developed with knowledge of the institutional environment. Misunderstanding of the nature of an economic phenomenon and failure to account for its institutional context leads to ineffective policy choices, because without knowing relevant causal relationships it is impossible to correctly foresee an outcome of a regulation, designed to deal with problems thought to be associated with the phenomenon. Too often causal relationships are assumed to be known and considered unambiguous with either no supporting evidence or due to the excessive generalization of conclusions applicable to a limited range of cases.

It happens when the area of policy-making has not been researched sufficiently well, as well as, and quite often so, when the focus of the public attention and debate and subsequently of the academic research has been so displaced that quasi-knowledge forms, which has more to do with supporting public concerns ex-post rather than analyzing their validity ex-ante. Sometimes it is a result of complex economic issues being discussed not only among experts but also receiving wide public resonance, being addressed in mass media as opposed to professional journals. Due in part to the tendency in the mass media towards sensationalism it usually involves reporting facts and experts' opinions in a very stylized, simplified manner, adapted to the demands of the general public. The same holds true with the rhetoric employed by politicians when addressing their electorate. This approach to the exploration of important issues poses danger as it may and often does gradually shift the focus of public discussion as well as experts' attention on to the matters not necessarily pivotal for understanding the problem but offering opportunities for easy but simplistic interpretation. Public opinion thus can become a driving force behind mistargeted policies.

Among the most vivid examples of such misplaced attention in Russia, and to some extent throughout the world, is the issue of capital flight. Capital flight has come to be viewed as a major economic problem in Russia and relevant figures are often quoted by mass media in the same manner as consequences of a major catastrophic event would be, with numerous politicians readily turning such information into an element of their campaigns. The issue of capital flight is regularly brought up as a sign of a looming economic crisis. In fact it seems that some of this attitude is attributable to the very terminology used to describe the issue under consideration; the context in which the term capital flight was originally used was associated with events which took place during massive economic crises and as this term now tends to be extended to describe processes occurring during comparatively normal times, so is the set of expectations regarding it possible economic nature and its potential impact on the economy.

Somewhat hysterical attitude towards this issue in Russia has not yet managed to become a self-fulfilling prophecy, but there is no guarantee that such stereotypical perception of capital flight will not lead to some unwarranted and populist steps by policy-makers aimed at dealing with the capital flight for instance by imposing stricter capital controls.

Public fears are not dispelled by a well-weighed discussion of it in the experts' community neither in Russia or abroad; virtually no theoretical response or opposition to the view of capital flight as an outtake of economic resources which on its own is detrimental to the economy's growth potential is present. Calls for imposition of capital controls are usually disputed on ideological grounds, but not on the basis of the knowledge of the nature and impact of capital flight from Russia.

There seems to be a significant knowledge gap in what concerns the issue of capital flight, which is especially worrisome since those engaged into economic policy design must have a clear vision of what the nature and the effects of capital flight on the

economy precisely are, for without this knowledge it is impossible to discuss a potential policy response.

It should be noted that while capital flight from Russia as well as from other emerging and developing economies has long been a topic of research and policy debate, the focus of the analysis was on the determinants of capital flight rather than on the consequences of it. A number of researchers adhere to the view that capital flight may have negative effect on financial markets and on the economic growth (Loungani and Mauro 2000), there being some econometric support to this view (see Powell et al 2002).

This view is however not equivocal, and as Schineller (1997) points out, the impact of capital flight on the economy is ambiguous, although an extensive discussion of it is not offered. Lack of agreement regarding the nature and the effects of capital flight among researchers is reflected in the conflicting policy recommendations.

While the calls for capital account liberalization were made by a number of economists within the context of Washington Consensus ideas since early 1990-ies, there is a certain amount of controversy about whether capital controls on outflows are acceptable or even desirable during macroeconomic crises as opposed to normal times. Some authors (see, for instance, Krugman 1998) have suggested that restricting capital outflows might be a feasible policy option under special circumstances. Krugman spoke of capital controls as a possible element of pro-growth policies for countries experiencing massive outflow during crises. In such scenarios restricting capital outflows may be beneficial as it gives policy-makers time to take anti-crisis measures until the economy is cured. The problem is the criterion which will allow classifying a situation as a crisis. Therefore the question of policy response to capital outflows is closely linked to the question of what macroeconomic crisis is. It may not sound like a difficult question in case of developed countries but it is obviously a question to be asked with respect to emerging economies where the pace of changes is so high that one needs to be quite cautious when classifying anything as normal. The discussion of policy options in Russia virtually always implicitly or explicitly involves assumption regarding how normal or critical the current economic situation is. There must be a criterion which can help distinguishing the two contexts, as currently it is more a matter of psychology rather than economics.

The roots of disagreement are however grounded even deeper as there is not a clear understanding among economists of the economic impact of capital flight. When economists join the discussion of feasibility of capital controls they tend to do it from the perspective of technical feasibility, that is by questioning the ultimate ability of policy-makers to effectively carry out such a policy, or even on ideological grounds of free trade adherents, rather than by asking whether capital outflows are an appropriate object for pro-growth policies at all. For instance according to the view expressed by Edwards (1999) capital controls are not feasible because they are usually easily circumvented and encourage corruption. Edwards also postulated that capital controls might create a false sense of security among policy-makers who in such case are more likely to forego dealing with fundamental problems. Edwards and Santaella (1993) and Cuddington (1986) showed that establishing capital controls may send a negative signal to investors, stimulating them to increase outflows while circumventing any controls. Yet there seems to be no answer for whether capital flight requires policy response even hypothetically, in a hypothesized situation of government being fully in control.

Potential policy response must be assessed based on the knowledge of what the role of capital flight actually is. The existing gap in theoretical research on capital flight calls for the study of capital flight within the institutional context so as to avoid the mistake of which Brennan and Buchanan (1985) said that:

> *"Complex analytical exercises on the workings of the market are often carried out without so much as passing reference to the rules within which individual behavior in those markets takes place"* (p.13)

The purpose of the research presented in this paper is to identify the impact of capital flight on the economy as well as to understand the nature of capital flight taking into account the institutional environment in which it happens.

The rest of the paper is organized as follows: in section 2 the methodology of New Institutional Economics is used to formulate an appropriate approach to study and to interpret the effects of capital flight and the institutional context in which capital flight from Russia occurs is discussed; in section 3 existing approaches to measuring capital flight are discussed; in section 4 the data used in the econometric analysis are described; in section 5 the testing methodology is presented; in section 6 the empirical results are presented; section 7 concludes.

2 Putting capital flight from Russia into the institutional context

From the perspective of New Institutional Economics a market (and this applies to capital market too) is seen as a network of relational contracts between economic agents, regulated by a set of operational rules (formal and informal) which govern transaction activities of inspection, contracting, execution, control and enforcement, and concerned with all types of exchange, including the exchange of capital (see Furubotn and Richter 1985, pp. 265-285, for the extensive discussion).

Since economic agents need to protect their interests in the environment of imperfect information and imperfect enforcement mechanisms their choice (or their acceptance) of a particular type of market organization is intended to minimize transaction costs and therefore limit the potential for opportunism among the market participants, thus ensuring that the exchange occurs repeatedly. In the hypothesized world of zero transaction costs and perfect information, it is the level of prices (in case of capital market – interest rate) which alone can serve to fully clear the market with perfect competition being the optimal market organization. Once the analysis departs from these assumptions it becomes clear that the mode of interaction between buyers and sellers, as well as between borrowers and lenders, may take on much more complex forms than what neo-classical vision of market implies.

High transaction costs related to repeated lending and borrowing may affect the evolution of the system of financial intermediation in a way similar to what happens in goods markets, which can become segmented due to vertical and horizontal integration and formation of conglomerates. Output of a firm being part of an integrated chain may be specifically intended for the use or consumption of other chain members and would not enter common market or penetrate barriers protecting competing integrated groups. As a result of the segmentation traditional price mechanism would not be able to clear the market.

Similarly in an institutional environment with high transaction costs of information search, inspection, contracting, execution, control and enforcement, capital markets may too become segmented, with specific lenders dealing with specific borrowers to overcome information asymmetry and to reduce potential opportunism. Such segmentation will inevitably hamper the development of domestic financial intermediation. The existence of monopolistic industrial-financial groups in countries with relatively poor institutional environment thus may be regarded as a departure from perfect market organization which is still optimal as it serves to minimize transaction costs. An interesting conclusion which can be arrived at when extending this line of

reasoning further is that if transaction costs associated with lending and borrowing are lower abroad than at home, then dealing with foreign borrowers (and under some conditions even with foreign lenders) may turn to be the preferred course of action and therefore foreign financial intermediaries (financial markets) can actually substitute for the domestic ones, quite possibly for the significant degree.

In the scenario described above one would expect capital flight to occur and this point in one way or another has been explored and tested by a number of researchers. For instance Wintrobe (1998) examines the connection between capital flight from Russia and such aspects of the institutional environment as poor enforcement of property rights, lack of efficient mechanisms of corporate governance, insecurity of investors' and creditors' rights. Similarly other researchers exploring the issue of capital flight list what can be considered relative deficiencies in institutional environment among the determinants of capital flight and test it using data on many nations.

The emphasis of most such works is however on the role of institutional factors in causing capital flight, not on identifying and explaining its effects. But if the institutional environment forces domestic economic agents to turn to foreign capital markets and financial intermediaries, then can it be that capital flight is really an optimal solution for the institutional deficiencies? Adopting the neoinstitutionalist approach to the exploration of capital flight will allow understanding not only how institutions affect the willingness of economic agents to take capital out of the country, but also how the ultimate economic impact of capital flight is predetermined by the institutional context.

If domestic capital market is segmented for the reasons described above and if capital flight represents an excess over the maximum amount of financing which under the existing institutional conditions can be extended by domestic lenders to domestic borrowers, then this capital flight per se will have little effect on the economy, if any. In this institutional context capital flight will not only affect economy's growth potential, but will actually defend it from boom-burst type of growth, when misestimating risks and the lack of mechanisms to insure against them lead to the expansion of bad credit forming credit bubbles.

Russia represents an example of poor institutional environment with high transactions costs of ensuring property rights and enforcing contracts. The deficiencies in the economy keeping the general level of transaction costs high lead to market concentration and low competition in most industries, as well as to the exacerbation of principal agent problem in corporate sector and to the concentration of corporate ownership and control. These deficiencies are the basis of the existence of formal and informal industrial-financial groups, where investment process is to a large degree internalized in a sense that investment decisions as well as the provision of financing to investment projects are under less pressure from market forces, which in more developed economies make corporations more sensitive to the level of interest rates, more flexible in timing their investment decisions, while low degrees of market concentration stimulate corporate investors to explore and use a wide range of investment opportunities. There is empirical evidence supporting the notion that membership in integrated market structures in Russia serves to mitigate problems associated with contracts enforcement and stimulates investment activity within the groups (see for instance Volchkova 2001); some researchers spoke of group firms in Russia having an internal capital market (Perotti and Gelfer 1998).

As some anecdotal evidence suggest up to three quarters of capital flight as well as significant portion of all investments is attributable to the firms in energy-sector where the dominant form of financing investments into physical capital is internal financing or financing through affiliated banks, although this is also true of many other sectors. Approaching the investment process from the microeconomic perspective it must be said that the decision to invest in physical capital is rarely a spontaneous one or

based on short-term dynamics of interest rates. Instead, such a decision is taken in the context of a long-term investment program, the anticipated cost of financing not being a major concern for corporate decision makers, when compared to such considerations as anticipated profits for one thing, which due to high market power will as a rule allow recovering all costs within a time period incomparably shorter than what corporations in developed economies deal with. In the situation of energy prices and incomes going up Russian companies or rather industrial and financial groups constantly find themselves earning more than was expected when their investment programs were drawn. Facing the need to allocate the additional earnings they turn to liquid and low-risk instruments abroad, with the interest rates at home not being a major consideration, as they do not represent a capital market clearing price.

Capital flight as stated earlier is to be expected when the overall institutional environment seriously obstructs the intensification of financial intermediation at home. The excess of financing available for investment is taken out of Russia, but the impact of such a capital flight on the investment activity is negligible, because it would not enter financial system in a full sense anyway. Whatever amount of financing is supplied by industrial financial groups to the non-affiliated banks and ultimately to other domestic investors, it seems to be kept by them growing at a rate consistent with the growth of investment opportunities, so as to keep banks balance sheets from significantly deteriorating. Therefore capital flight can be regarded as an alternative to the expansion of low-quality credit.

To test the validity of the presented approach to hypothesizing about the nature of capital flight as well as to evaluate the economic impact of capital flight the following implication of it must be reiterated explicitly: if institutional environment leads to the segmentation of domestic capital market and to the substitution of domestic financial intermediation by foreign financial intermediation, then the relative dynamics of domestic interest rates is not to depend on the dynamics of capital flight and vice versa, since the changes in the level of domestic interest rates do not in this case represent the workings of a price mechanism which would clear the market. The testing approach adopted in this paper is based on this assumption.

3 Measuring capital flight

There is no single agreed-upon measure of capital flight in the literature as there is no uniform conceptual approach to the definition of this phenomenon and therefore no universally adopted measuring procedure.

Some authors, following the tradition set by Kindleberger (1937), believe that capital flight should be distinguished from regular capital flows arising in course of transnational economic activities. According to this view capital flight is a subset of capital flows which is driven by fears of expropriation, economy-wide default on debts and other issues stemming from inefficient or adverse government policies. More recent approach to measuring capital flight defined this way was proposed by Dooley (1986, 1988); it involves estimation of the changes in the stock of claims on foreign assets not subject to taxation and control by the domestic government and therefore not generating officially-reported investment income.

While such an approach has its merits in terms of theoretical analysis, it is hard to use it in practice. Movement of capital across borders involves flows of varying nature, some of them being an inevitable consequence of transnational economic activities, of attempts to diversify a portfolio of economic assets, others driven by fears or by short term financial or speculative considerations, and still others being result of illegal activities, tax evasion and so on. Motivation of an economic agent behind an

investment decision which leads to transnational capital flows often involves a mixture of various considerations, so even classifying a single transaction might prove to be a difficult task. Moreover, as some authors have demonstrated the measuring procedure might be a subject to significant errors (see Schneider 2003 for the discussion).

An alternative point of view, advocated for instance by Tornell and Velasco (1992), is that capital flight should be defined in broader terms, essentially as the overall outflow of productive resources from the economy. This approach is more beneficial both from the practical point of view, as well as considering the task of studying the effects of capital flight on capital markets and investments, because regardless of the differences in the potential effects of various components of capital flows considered in isolation, it is safe to assume that the eventual consequences for the economy depend on overall capital flows.

Broad measure of capital flight includes net flows of assets and liabilities held by private sector and net errors and omissions, captured in the balance of payments. Bank of Russia reports its estimates of capital flight based largely on this approach. In this paper we will be using the Bank of Russia estimates. While these estimates is not free of flaws and may not reflect capital flight fully, its use is possible and even desirable for several reasons.

First, it is the figures presented by the Bank of Russia that usually are used in public policy debate and in discussions of Bank of Russia policies and it is these figures that are cited by public officials in their assessment of and their comments on capital flight dynamics. Second, unlike some indirect estimates of capital flight Bank of Russia figures are available on quarterly basis for a relatively extensive period of time and are calculated using consistent methodology, which allows for econometric analysis. Finally, the magnitude of figures provided by the Bank of Russia is on par with alternative estimates, even if exact figures differ. Thus it seems justified to operate with the Bank of Russia estimates for the purposes of analyzing the relationship between interest rates and capital flight and especially for the examination of policy arguments usually employed in public debate in Russia.

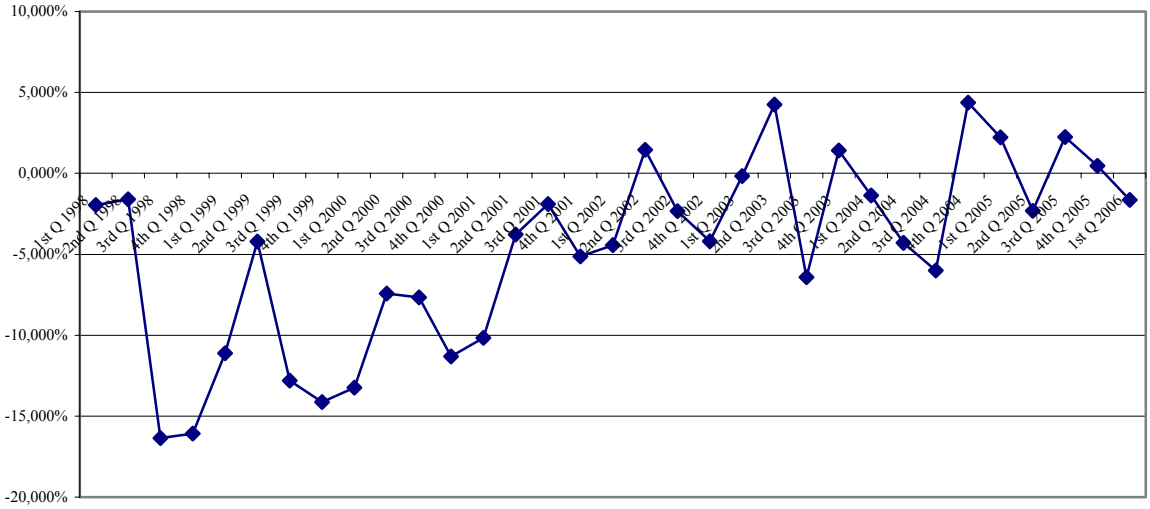
4 Basic facts on capital flight from Russia and the description of the data

The data on capital inflows and outflows used in this paper are provided by the Central Bank and are based on the Balance of Payments data for 33 quarters starting with the first quarter of 1998 and up to the first quarter of 2006, that is for the period following the financial crisis of 1998.

Annual net capital outflow from Russia was between 20 – 25 billion US dollars (7-11% of GDP) in years 1998-2000, 15 billion US dollars in 2001 (5% of GDP), about 8 billion US dollars in 2002 (2.5% of GDP), and record low 1.9 billion US dollars in 2003 (0.5% of GDP), growing again in 2004 to about 8 billion US dollars (1.36% of GDP), turning in 2005 into an inflow of 0.9 billion US dollars (0.12%).

Capital flight figures expressed as a percentage of GDP on a quarterly basis are presented on the graph below.

Capital flight from Russia as % of GDP
(on a quarterly basis)



It should be noted at this point that analyzing capital inflows and outflows, as well as virtually any macroeconomic variables, in a transition economy presents an especially challenging task due to the immensity of changes taking place in all spheres of social and economic life, which inevitably distorts the way various economic processes unfold. And while it may not be entirely correct to consider that after 1998 the transition period ended, it is still obvious that the period of 1999-2006 has been characterized by far greater macroeconomic and financial stability, clearer definition of property rights and lesser uncertainty than the preceding part of 1990-ies.

In some sense the crisis of 1998 was the point which marked the resolution of several major distortions in the economy, such as overvalued currency, unmanageable volume of public debt, persistent budget deficits and so on. Improvement in those areas was of course a result of numerous factors, particularly rising oil prices, but what matters for our analysis is simply the fact that in the period we are going to examine there were no major macroeconomic or financial shocks in Russia, which makes econometric analysis more sensible.

The difference between domestic and foreign interest rates (interest rate differential) is calculated using the average rates on US dollar denominated loans provided by Russian banks to organizations and individuals and US dollar 3-month LIBOR. The former data is from Russia's Central Bank and the latter is from the British Bankers Association.

5 Methodology

It can be argued that the approach chosen in the paper to test the impact of capital flight on the interest rate differential can be extended to evaluate its economic impact in broader sense, which would otherwise require testing quantitatively the connection between capital flight dynamics and rates of economic growth. In any case the problem with performing the latter straight-forward econometric exercise is associated on the one hand with the availability and the format of data and on the hand with the interpretation of the results. Analyzing appropriate time series for Russia is highly complicated due to

the lack of observations except for the later periods, as well as due to the scale of changes in the economy during the transition, whose effects on growth rates and capital flows are not easily discernable econometrically if at all. Cross-country comparison and subsequent interpretation of the results is also difficult due to the varying nature of economic growth and motivation of economic agents taking capital out, in other words due to the varying institutional context. What is also important is that aiming at analysis of concrete country-case may prove to be a worthier task from policy-making perspective that attempting to formulate fit-for-all universal recommendations.

The notion that capital flight might affect growth potential usually rests upon the assumption that it makes more difficult for economic agents to obtain financing for their investment projects which thus impedes investment activity, a principal driver of economic activity. Hence it is possible to check the validity of such a view by estimating the impact of capital flight on the interest rates, whose dynamics is a direct indicator of the availability of financial resources.

The traditional procedure for testing whether there is a causal relationship between variables is based on the concept of causality introduced by Wiener (1956) and Granger (1969). A variable X is said not to Granger-cause another variable Y, if for the equation

$$y_t = \alpha + \beta_1 y_{t-1} + \beta_2 y_{t-2} + \ldots. + \beta_p y_{t-p} + \gamma_1 x_{t-1} + \gamma_2 x_{t-2} + \ldots. + \gamma_q x_{t-q} + e_t$$

where $e_t \sim$ iid $(0, \sigma^2)$, the following null hypothesis is true:

$$\gamma_1 = \gamma_2 = \ldots. = \gamma_q = 0.$$

In essence the concept of Granger-noncausality rests upon the assumption that if one variable is causing another variable, the changes in the former must precede and thus must help predict changes in the latter.

The traditional procedure for testing non-causality as proposed by Granger (1986) required that the variables were not cointegrated. While procedures exist which allow testing for integration and cointegration and further transforming time-series into the necessary form, a number of studies (Toda and Yamamoto 1995, Zapata and Rambaldi 1997) have demonstrated that such tests and manipulations may be unreliable and may lead to a loss of information contained in the original time-series as tests for unit-roots and cointegration may be biased.

An alternative procedure was developed by Toda and Yamamoto (1995), Dolado and Lutkepohl (1996), and Zapata and Rambaldi (1997). According to it the testing for non-causality is carried out in the framework of a vector autoregression (VAR), augmented in a way which guarantees asymptotic distribution of the modified Wald test regardless of whether the time series are stationary, integrated or cointegrated of arbitrary orders. The modified Wald test statistic has an asymptotic χ^2 distribution for VAR $(k + d_{max})$, where k is the lag length and d_{max} is the maximal order of integration present). The order of integration can be determined using an Augmented Dickey-Fuller test and the lag length may be detected using an information criterion, such as Akaike Information Criterion or Schwartz's Bayesian Information Criterion. After the lag length and the order of integration are determined VAR $(k + d_{max})$ is estimated and the Wald test is performed on the first k coefficients.

6 Empirical results

In the first stage of the analysis it is necessary to determine the highest order of integration present in the times series under study, which were adjusted prior to this for seasonal factors using additive model. The lag length is selected by looking at the *t*-ratio of the coefficient of the longest lag in the ADF regressions, sequentially estimated down from a lag of 5 quarters. When the optimal lag length is greater than 1 Augmented Dickey-Fuller test is used, when it is equal to 1 Dickey-Fuller test is appropriate.

Results of Dickey-Fuller / Augmented Dickey-Fuller test for unit roots:

Variable (Lag)	*P-values*			
	Test without constant	*Test with constant*	*Test with constant and linear trend*	*Test with constant and quadratic trend*
In levels:				
CFL	*0.08491*	*07708*	*6.578e-007*	*2.994e-007*
IDF	*0.2606*	*0.8949*	*0.9833*	*0.819*
In first differences:				
d_CFL	*1.518e-012*	*7.472e-015*	*1.359e-013*	*1.443e-024*
d_IDF	*0.0358*	*0.017*	*0.05611*	*0.01062*

It should be noted that although the results of the test for unit roots based on four alternative test modifications are available, it seems that it is the test with constant which is consistent with the economic nature of the variables under examination. It is somewhat implausible to consider capital flight relative to GDP as having an inherent tendency to grow over long term and thus to model it with a trend; as for the interest rate differential, modeling its long term dynamics with a trend is entirely baseless from the theoretical point of view.

Thus, based on the results of Dickey-Fuller / Augmented Dickey-Fuller test, the suggested maximal order of integration, d_{max}, is 1.

The optimal lag length for the vector autoregression calculated using Akaike, Hannan-Quinn and Schwartz information criteria, k, is 4.

The next step is to proceed to the estimation of an augmented vector autoregression in levels with 5 lags as $k + d_{max} = 5$. The system takes on the following form:

$$\begin{bmatrix} CFL_t \\ IDF_t \end{bmatrix} =$$

$$= \begin{bmatrix} a_{10} \\ a_{20} \end{bmatrix} +$$

$$+ \begin{bmatrix} a_{11}^{(1)} & a_{12}^{(1)} \\ a_{21}^{(1)} & a_{22}^{(1)} \end{bmatrix} \begin{bmatrix} CFL_{t-1} \\ IDF_{t-1} \end{bmatrix} + \begin{bmatrix} a_{11}^{(2)} & a_{12}^{(2)} \\ a_{21}^{(2)} & a_{22}^{(2)} \end{bmatrix} \begin{bmatrix} CFL_{t-2} \\ IDF_{t-2} \end{bmatrix} + \begin{bmatrix} a_{11}^{(3)} & a_{12}^{(3)} \\ a_{21}^{(3)} & a_{22}^{(3)} \end{bmatrix} \begin{bmatrix} CFL_{t-3} \\ IDF_{t-3} \end{bmatrix} + \begin{bmatrix} a_{11}^{(4)} & a_{12}^{(4)} \\ a_{21}^{(4)} & a_{22}^{(4)} \end{bmatrix} \begin{bmatrix} CFL_{t-4} \\ IDF_{t-4} \end{bmatrix} + \begin{bmatrix} a_{11}^{(5)} & a_{12}^{(5)} \\ a_{21}^{(5)} & a_{22}^{(5)} \end{bmatrix} \begin{bmatrix} CFL_{t-5} \\ IDF_{t-5} \end{bmatrix} +$$

$$+ \begin{bmatrix} e_{1t} \\ e_{2t} \end{bmatrix}$$

The system is approached as Seemingly Unrelated Regression Equations model and is estimated using Ordinary Lest Squares method.

Estimated system:

$$CFL_t = -0.0048 + 0.0285\,CFL_{t-1} + 0.04447\,IDF_{t-1} - 0.0265\,CFL_{t-2} - 0.0565\,IDF_{t-2} + 0.0541\,CFL_{t-3} +$$

$$+ 0.1511\,IDF_{t-3} + 0.02565\,CFL_{t-4} - 0.07777\,IDF_{t-4} + 0.01375\,CFL_{t-5} - 0.1101\,IDF_{t-5} + e_{1t}$$

$R^2 = 0.7474$

Test of the null hypothesis that first 4 IDF parameters are jointly zero:

Wald test 7.04

Critical value at 10% is 7.78; at 5% - 9.49.

Accept the null hypothesis.

$$IDF_t = -0.0009 + 0.000235\,CFL_{t-1} + 0.05546\,IDF_{t-1} + 0.00373\,CFL_{t-2} + 0.0541\,IDF_{t-2} + 0.00195\,CFL_{t-3} +$$

$$+ 0.0111\,IDF_{t-3} - 0.00618\,CFL_{t-4} - 0.0226\,IDF_{t-4} - 0.008906\,CFL_{t-5} + 0.005461\,IDF_{t-5} + e_{1t}$$

$R^2 = 0.8719$

Test of the null hypothesis that first 4 CFL parameters are jointly zero:

Wald test 6.82

Critical value at 10% is 7.78; at 5% - 9.49.

Accept the null hypothesis.

The obtained results suggest that the hypothesis of Granger non-causality cannot be rejected at 5% and 10% levels neither in the direction from *CFL* to *IDF*, nor from *IDF* to *CFL*. In other words we fail to obtain evidence of pronounced effects of capital flight on interest rate differential and of interest rate differential on the dynamics of capital flight for time horizon over 3 months (1 quarter) long. These results are consistent with the previously stated point that if capital flight occurs because institutional environment leads to the segmentation of domestic capital market and substitution of domestic financial intermediation by foreign financial intermediation, then the relative dynamics of domestic interest rates is not to depend on the dynamics of capital flight and vice versa.

7 Concluding remarks

The results of the research presented in this paper demonstrate that net capital outflow Russia of the magnitude observed during the period under examination does not have a detectable medium- or long-term effect on domestic capital market. Therefore it may be postulated that the observed capital outflow represents a normal process which can be regarded as nothing more than an outtake of financial resources in excess of what economic agents are willing to extend to domestic borrowers in the existing institutional environment, and considering the existing institutional arrangements. Capital flight might be reconsidered as being not just a consequence, as some researchers have argued before, but also an optimal solution to the institutional deficiencies with its economic role rather being neutral than negative.

Knowledge of the economic impact of capital flight and the institutional factors behind it allows providing a justification for the liberal calls against imposition of capital

controls. Capital flight of the kind observed in Russia per se does not require policy response in form of stricter capital controls which actually can only make things worse, because such restrictions do not increase the range of good investment opportunities but stimulate instead financing of low quality projects, accumulation of bad debts and credit boom which will eventually burst driving the economy into crisis. In some sense it is equivalent to stimulating speculative capital inflows. Hence restricting capital flight in this particular case cannot be a part of a pro-growth economic policy, even if it seems to some observers that the situation is a critical one.

It is only by taking steps to improve the institutional environment in which the investment process occurs that policy-makers can stimulate investment activity, with capital flight ceasing as a result of it.

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