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Russia's macroeconomy – a closer look at growth, investment, and uncertainty

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Abstract

This paper looks at economic growth and its fundamental determinants in Russia over the last decades. It starts by showing that, contrary to the views of some political commentators, growth is highly important for the popularity of president Putin. Furthermore, regular models of growth are relevant to Russia and other transition countries over the last two decades and one important determinant of growth is investments in physical capital. This in turn is correlated with FDI, which is also key for Russia's strategy to modernize and diversify its economy away from oil, gas and minerals extraction. However, FDI is negatively impacted by the policy uncertainty that Russia generates both by domestic and foreign policy. Reforming institutions on paper will not be enough to reverse the trend of declining FDI but has to be accompanied by a regime that refrains from policy actions at home and abroad that add to the significant macroeconomic volatility that is already created by large swings in international oil prices.

Keywords: Russia; Putin; macroeconomics; growth; investments; FDI; volatility

JEL: E60; F40; O52

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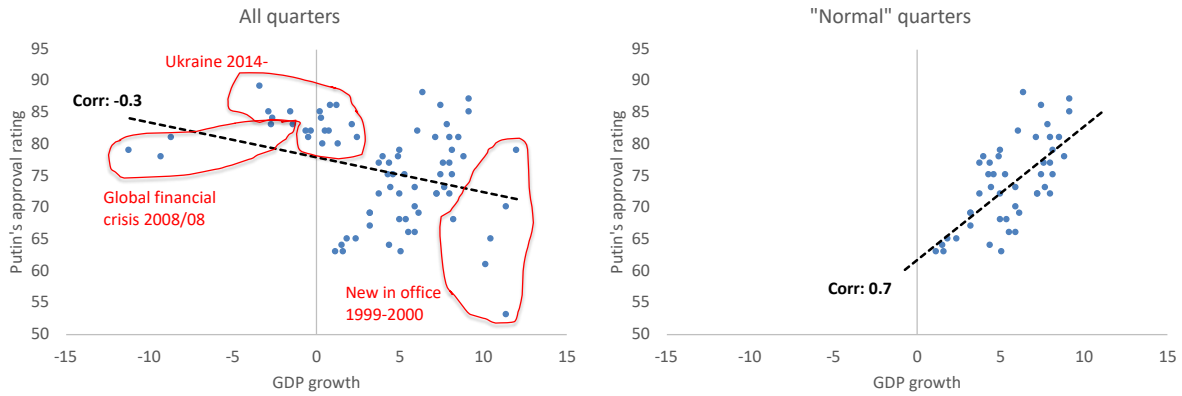
Introduction

Russia is in many ways a special country which may lead us to believe that regular political and economic analysis is not applicable. This may certainly be true in some regards, but there are still many dimensions that are as relevant in Russia as it is in most other countries. One such dimension is that generating growth and prosperity in a stable macroeconomic environment is something both the leadership and population at large value.[1] However, looking at approval ratings and GDP growth for president Putin does not immediately tell this story.

In the left panel of Figure 1, Putin's approval rating in the Levada center's surveys is negatively correlated with GDP growth. It is rather unexpected and unusual that a country's leader becomes more popular when growth is lower. A closer look at the data reveals that the negative correlation is generated by three distinct periods; the first year is office when Putin was still relatively unknow at the same time as Russia's growth rates were the highest since the break-up of the Soviet Union due to the rebound after the 1998 crisis; then Russian growth was hit by the global financial crisis in 2008/09; and then finally there is the period of Putin's approval getting a significant boost following the annexation of Crimea and period of sanctions a counter-sanctions in a time of very poor growth.

Figure 1. GDP growth and approval ratings of Putin



Source: Author's calculations, Levada center and Federal Statistics service data

Removing these exceptional periods from the left panel in Figure 1 we get the right panel that shows what we can think of as more "normal" quarters of economic and political developments in Russia. All of a sudden, the approval ratings for Putin line up very well with quarterly growth rates and the correlation between the two variables goes from a negative 0.3 in the left panel to a positive 0.7 in the right panel. In other words, Putin's popularity increases with higher growth like in most other countries. The caveat is of course that when growth turns out to be less than satisfactory there are other ways for a Russian president to boost his approval ratings.

[1] Chapell (1990) show that both approval ratings and voting depend on growth and inflation in the U.S.

Again, Russia may be different in the sense that approval ratings and the probability of regime change are less clearly connected than in Western democracies, but it is hard to think that low popularity ratings would not affect the probability of some type of popular or elite movements that challenge the president. Therefore, generating high and sustainable growth is one of the central tools also for a president in Russia to stay in power. The fundamental question posed in the chapter is whether capital flows and foreign direct investments can help generate more productive domestic investments that in turn lead to higher sustainable growth. In order to analyze the economic-political nexus of growth and popularity ratings, the chapter starts by investigating how Russian growth compares with peer groups and to what extent a regular growth model can be used to understand growth in Russia. The analysis suggest that this is the case and then looks at investments, capital flows and uncertainty to disentangle external factors and domestic policies that have contributed to the developments we have seen in the Russian economy.

What sets this analysis apart from much of the other literature on Russian growth is the focus on uncertainty and the importance of specific policy actions rather than institutions more generally. It also highlights how a serious economic reform program will contribute to regime stability in the longer run while external conflicts only have a short-run popularity effect that carries a high price in terms of lost growth opportunities and lower long-term approval ratings.

Growth

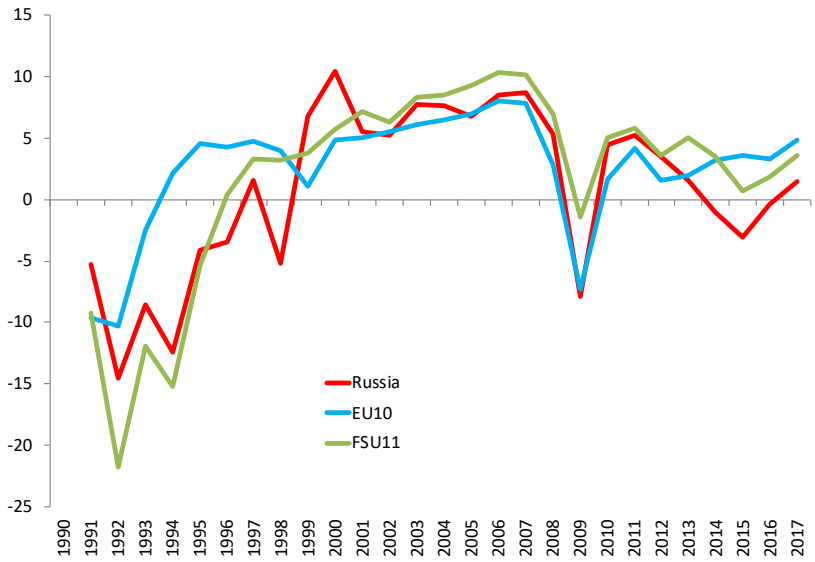
Actual growth since the start of transition

Russia's growth since 1991 has gone through several phases as can be seen in Figure 2. These phases are explained by a mix of fundamental growth drivers, external shocks, and domestic policies. The problem for Russian voters (and sometimes also for researchers and policy makers) is to disentangle what changes in their income are due to a capable leader's policies or simply luck when it comes to external shocks. The strong positive correlation between approval ratings and growth in the right panel of Figure 1 suggests that voters in more normal times rather indiscriminately reward their leader with higher ratings when growth is higher and vice versa even if much of the variation in growth is due to external factors such as changes in international oil prices. However, the global financial crisis in 2008/09 is an example when people clearly identified the shock to be external and where the popularity rating of the president did not fall as would otherwise be expected. The political cost of poor economic performance can also be seen in the first decade of transition from a planned economy to a more market oriented one. This was not a smooth process but instead growth was negative for many years and that is still reflected in peoples' views of former leaders such as Gorbachev and Yeltsin.

Russia was not unique among transition countries to experience negative growth in the early years of transition, and both the countries that later joined the EU (EU10 in Figure 2) and the other countries that came out of the Soviet Union (FSU11) had a similar start with declining incomes.[2] However, the rebound to positive growth was significantly faster among the EU10 countries than in Russia and the FSU11 countries.

[2] Åslund (2013) discuss the transition process in Russia and other post-communist countries at more length.

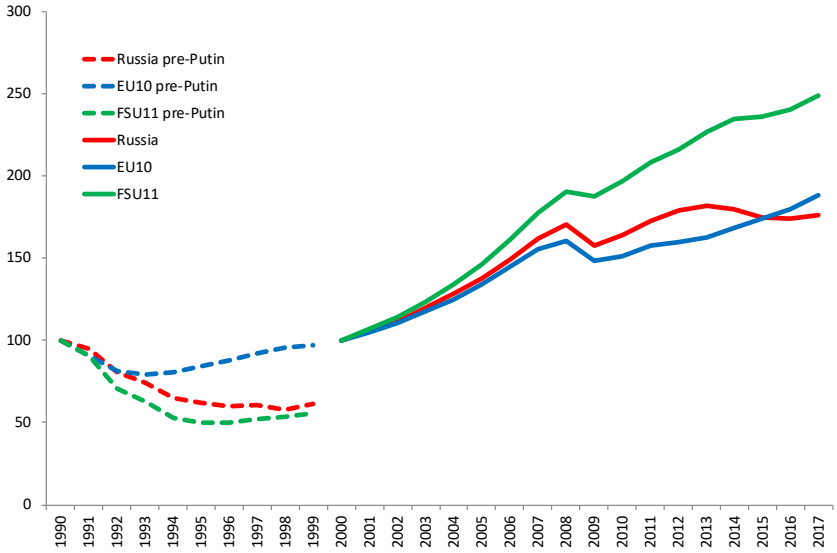
Figure 2. Real GDP growth



Source: World Bank

The differences in growth between Russia and the peer country groups may not look so striking but when growth differences accumulate over several years, the differences in income levels are significant. In Figure 3, the lines are broken in the first, pre-Putin, phase of transition with income levels set at 100 in 1990. By the end of 1999, Russia had lost more than 40 percent of its initial income level, similar to the other FSU countries but far behind the EU10 group of countries that by then had come back to where they started the transition process in terms of income levels.

Figure 3. Russia and peers GDP index (1990=100 then 2000=100)



Source: World Bank and author's calculations

The second part of Figure 3 restarts the comparison at the time Putin became president for the first time. With 2000 as the starting point, the FSU11 group generated the highest average growth rate and in 2017, income levels were 2½ times of what they were in 2000. Russia was for a long time ahead of the EU10 countries in terms of growth in this period but after the very poor growth performance after 2013, Russia was overtaken also by the EU10 group. Nevertheless, under Putin's watch, incomes in Russia had increase by 1.7 times in 2017 compared to 2000, in stark contrast to the loss of 40 percent of incomes in the first decade of transition. It is not hard to understand that the arrival of a president that coincides with a shift in economic fortunes of this scale generates ample support in the population and that a narrative of Putin creating order from chaos can take hold.

There are many external factors that affect Russia's macroeconomic performance and the volatile and unpredictable world market price of oil is of particular importance. Oil prices have explained around two thirds of Russian growth and account for a similar share of one-year ahead forecast errors in recent decades (Becker, 2017a). Over the years, Russian policy makers have adopted policies to mitigate the volatility of oil prices by first creating different versions of oil fund(s) and then abandoning the fixed exchange rate and move to inflation targeting. Becker (2017a) shows how these latter policies were important factors in dampening the downturn in 2014 compared with the more severe decline in output that was experienced in the 2008/09 global financial crisis. Although these measures have been important steps to deal with the shorter run implications of Russia's oil dependence, they cannot change the fact that policies aimed at diversifying the economy is the only solution to generate stable and sustainable growth at a level that is sufficient to close the income gap with high income countries and stay ahead of its middle-income emerging market peers. In its October 2018 forecast of the world economy, the IMF (2018) projects that Russia will grow by 1.8 percent, similar to the 2 percent growth in advanced economies but well behind the 4.7 percent growth in emerging markets.

Are "normal" growth models relevant for Russia?

If we turn our attention to regular growth models that focus on factors that the literature has identified as fundamental drivers of growth, we may better understand what Russia needs to do to boost growth going forward. Becker and Olofgård (2018) use a robust empirical growth model to understand differences in growth across 25 transition countries in the first 25 years since the dissolution of the Soviet Union. The model was originally specified and estimated by Levine and Renelt (1992) with a focus on identifying the robust determinants of growth among the long list of variables that have been used in empirical growth models. In the end the authors show that initial GDP, population growth, human capital measured by secondary schooling and the ratio of investments to GDP are the most robust determinants of growth across a large number of countries and over time. The model was estimated without the transition countries that we study in Becker and Olofsgård (2018). We could therefore use the estimated model to see how well it predicted the growth experience of transition countries to investigate the question if (and when) transition countries can be thought of as "normal" countries from a growth perspective.[3]

[3] The notion of Russia being a "normal" country was introduced by Shleifer and Treisman (2005) and then used by the authors to look at a wider set of countries in Shleifer and Treisman (2014).

Table 1. Russia and peers—predicted and actual growth

	constant	initlal GDP	pop growth	sec school	inv/GDP	predicted	actual	residual (a-p)
				Variable average 1991-1999				
Russia	1	3,10	-0,08	0,87	0,22	4,80	-5,04	-9,83
FSU11	1	1,68	0,34	0,92	0,14	3,91	-5,95	-9,86
EU10	1	3,24	-0,41	0,94	0,18	4,25	-0,45	-4,71
				Impact on predicted growth 1991-1999				
Russia	-0,83	-1,08	0,03	2,77	3,91			
FSU11	-0,83	-0,59	-0,13	2,92	2,53			
EU10	-0,83	-1,14	0,16	2,97	3,10			
				Variable average 2000-2017				
Russia	1	1,80	-0,13	0,86	0,16	4,11	3,87	-0,24
FSU11	1	0,88	0,53	0,88	0,15	3,98	3,92	-0,06
EU10	1	2,81	-0,42	0,91	0,23	5,31	5,58	0,27
				Impact on predicted growth 2000-2017				
Russia	-0,83	-0,63	0,05	2,72	2,80			
FSU11	-0,83	-0,31	-0,20	2,78	2,54			
EU10	-0,83	-0,98	0,16	2,87	4,09			

Source: Becker and Olofsgård (2018) based on Penn World Data 9.0 and additional calculations

Using the same methodology here but with a focus on Russia and the country groups that we used in Figure 1 we can generate predicted growth and compare this with actual growth for the first decade of transition and then do the same with the 17 years that coincides with Putin being the president and prime minister of Russia. For the initial period the model predicts that Russia would grow at 4.8 percent per annum while in fact, income declined by 5 percent per year on average. Russia thus underperformed expected growth by almost 10 percentage points per annum. This is similar to the other FSU countries but far behind the EU10 group that "only" underperformed the model by around 5 percentage points.

The picture changes dramatically when we look at the period 2000-17. Both Russia and the peer groups have growth that comes very close to what the model predicts; the residuals are a few tenths of a percent up or down. In this sense, these countries are in this time period indeed "normal" countries.

The numbers in Table 1 also allow us to discuss the quantitative importance of the different fundamental growth factors in generating the predicted growth rates. The general impression is that human and physical capital as measured by secondary schooling and investments to GDP are of equal importance and of more significance numerically than the other variables. However, the second observation is that there is much less variation in the growth that is generated by human capital than by physical capital. If Russia had the secondary schooling of the average EU10 country, growth would only increase by 0.15 percentage points while if the investment rate was on par with EU10 countries, growth would increase by 1.3 percentage points. In other words, differences in investment to GDP ratios explain almost all of the difference in predicted growth between Russia and the EU10 countries. For the political leaders of Russia this is an important message. The various proposals to modernize and diversify the economy can have a large impact on expected growth in Russia and with the right incentives to invest in sectors that are less subject to external volatility, this would also

make Russia's growth more robust.[4] It is therefore important to understand how investments have evolved over time and how this can be explained. This is the focus in the following sections.

Investments

There are a number of measurement issues related to investments (and other variables) in the national accounts statistics. The data in Table 1 is from the Penn World Tables 9.0 where there is an effort to make data comparable between a large number of countries, including Russia. Investments to GDP is measured as the share of gross capital formation at current PPPs and is extremely high in the initial years of transition and much lower later in the sample compared to the official statistics from the Federal Statistics Service. If we use the official data, there are also significant differences in the dynamics of investments between data in current prices or constant prices.

An important factor behind the differences in shares between the current and constant prices series is due to the importance of oil exports. The constant price data measures exported quantities, while the current price data measure export values and is therefore subject to changes in both international oil prices (measured in dollars) and changes in the exchange rate (since the accounts are in ruble). Since GDP shares obviously have to add up to 100 percent (at least when the statistical discrepancy is taken care of), if exports develop very differently for the current and constant price series, so will all the shares, including investments to GDP.

Instead of focusing on how the share of investment in GDP develops we can look at the growth rate of investment, which is not subject to an adding up constraint. To avoid having inflation that has varied greatly over the years distorting the analysis, growth should be measured in real terms. This implies using either the constant price series or taking the current price series and covert it to dollars with the idea that the exchange rate will move in the opposite direction of inflation and provide a measure that is closer to real growth in investments. Since the next step of the analysis involves exploring how capital flows (which are measured in dollars in the balance of payments statistics) are related to investments, the focus will be on how investments measured in dollars have evolved.

The first observation from Figure 4 is that the growth of investments has varied greatly since the start of transition, which is not surprising given the growth charts we have seen. As expected, investment is more volatile than growth but since we are looking at growth in dollar terms, both series display a very high degree of volatility. Although the initial years of transition were particular volatile with the initial investment boom followed by the 1998 crash, also more recent quarters display growth rates going from plus to minus 40 percent, which of course are linked to significant changes in the exchange rate.[5]

[4] The benefits of investments in other sectors than the extractive industries are rather obvious. However, decisions to shift government policies away from extractive industries to the benefit of other sectors would be subject to a political process with strong opposing forces as discussed in Fortescue (2018).

[5] In a recent study, Berezinskaya (2017) notes that there has been no growth in investment measured in constant ruble terms in recent years and this is the first prolonged stagnation of investments since Putin became president.

Figure 4. Investment and GDP growth

Note: Growth is calculated from same quarter last year on GDP measured in current terms and converted to USD by using quarterly exchange rates
Source: Federal Statistics Service and author's calculations

What are then the factors that drive changes in investment? In many transition countries, foreign direct investments have been important drivers of investments and growth (see Mileva, 2008). Russia has of course received large foreign investments since 1991, but in many empirical studies of FDI, Russia receives significantly less than what could be expected for an economy the size of Russia.[6] The question here though is if the FDI that comes to Russia has a significant impact on investments in fixed capital at the macro level. In addition to FDI, we can expect that changes in international oil prices will affect investment growth just as it explains overall growth of the economy. Finally, institutional factors that are thought to affect the investment climate could impact investment growth. Table 2 shows the result from running linear regressions on changes in investments on changes in oil prices, changes in foreign direct investments and changes in institutional factors as measured by the EBRD's transition index and a composite index based on the World Governance indicators on rule of law, control of corruption and regulatory quality.

The main result from this is that foreign direct investments do lead to higher investments as do increases in oil prices. The coefficient on FDI is larger than one which suggest that there are positive spillovers from FDI to other domestic investments (or crowding in rather than crowding out of domestically financed investments) similar to the finding in Mileva (2008).

[6] Both Bevan et al. (2004) and Frenkel et al. (2004) find significant negative Russia dummies in cross-country regressions of FDI determinants.

Table 2. Correlates of investments

	Fixed capital investments (USD)	
	(I)	(II)
FDI inflows lagged	1.521	1.586
t-val	*6.51*	*5.97*
Oil price	0.473	0.386
t-val	*3.37*	*2.79*
EBRD index		13.187
t-val		*0.48*
WGI index		-49.998
t-val		*-1.04*
constant	2.265	3.658
t-val	1.62	*2.65*
Obs	88	74
Adj. R sq.	0.37	0.35

Note: All variables are changes in respective variable.
Source: Author's estimates based on data from Central Bank of Russia, EBRD, World Governance Indicators, and US Energy Information Administration.

At the same time, the amount of FDI is relatively small compared to overall investments and the share has fallen dramatically since the global financial crisis, from a peak of over 20 percent in 2007 to around 5 percent in 2018. FDI can also play an important role in modernizing and diversifying the economy since foreign investments can be associated with important knowledge transfers both in terms of technology and management practices that can facilitate a structural change of the economy. Therefore, attracting FDI should be high on the list of any policy maker that is serious about generating growth and diversifying the economy. However, the institutional factors fail to generate any significant impact on investments, which is counter to regular arguments on the importance of institutions. This can be a result of insufficient variation in the institutional variables over this time period or that the simple analysis here does not account for more complicated causal stories. This may lead to problems with endogeneity with the institutional factors and this part of the analysis should not be taken too literally for this reason. However, there is clearly an empirical regularity between inflows of foreign direct investments and investments in fixed capital at the macro level that warrants a closer look at capital flows.

Capital flows

Capital flows are an important link between the domestic economy and global markets in any country. The role of capital flows is not only to finance investments, transfer knowledge and

generate growth at home, which is the main focus here, but also to facilitate consumption smoothing and risk management. The latter reasons for international capital flows are likely to have been highly important to understand capital flows between Russia and the rest of the world. The composition and magnitude of flows can provide important signals on how both residents and foreign entities view the growth prospects of a country as well as the functioning of financial markets and the institutions that protect property rights.[7] In emerging markets, sudden reversals of capital flows ("sudden stops") have been shown to be the costliest shock that faces these countries in terms of loss of income at the macro level (Becker and Mauro, 2006).[8] This suggests that avoiding sudden stops is a key factor for long-term growth and macroeconomic stability.

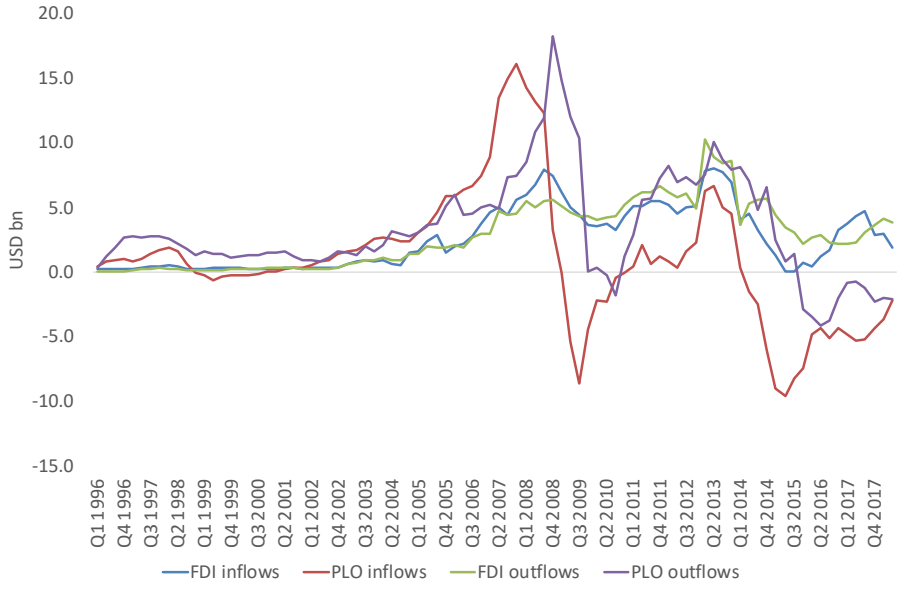
Figure 5 shows private capital flows in the form of foreign direct investments (FDI), and portfolio, loans and other flows (PLO).[9] Inflows and outflows are shown separately for each category and note that for the PLO flows, both inflows and outflows can (and do) take on negative values. A number of observations are worth mentioning here. First of all, the PLO flows are both greater in absolute terms and much more volatile than FDI flows. This is very much in line with the discussion about "hot money" flows to emerging markets that says that FDI flows ("good cholesterol") are more stable and beneficial for growth while portfolio flows and loans ("bad cholesterol") are volatile and associated with the problems of sudden stops discussed above (see Fernandez-Arias and Hausmann, 2000). The Russian story seems to be in line with this reasoning given that large portfolio and loan inflows are in many periods followed by equally large outflows. FDI flows follow a different pattern where inflows and outflows are moving up and down at the same time. This indicates that there are common factors driving both FDI inflows and outflows but no sign that FDI inflows lead to outflows shortly after.

[7] Fernandez-Arias and Hausmann (2000) discuss the links between institutional quality and the level and composition of capital flows and note that better institutions increase overall flows but that the share of FDI in total flows is negatively correlated with institutional quality.

[8] Calvo (1998) provides a more in-depth analysis of "sudden stops", which apparently comes from a banker that said that "it is not the speed that kills, it is the sudden stop".

[9] Capital flows in the balance of payments statistics are divided into foreign direct investments, portfolio flows and "other" flows that include bank loans between domestic and foreign entities. There are also unaccounted flows that fall under the heading "errors and omissions" which captures both statistical errors and unregistered flows that would include capital flight that do not go through the banking system or other official channels. As a country's economic and financial system matures and the statistical agency develops, this component tends to shrink. The balance of payments statistics also makes a distinction between flows in the private sector versus government institutions. This may sound as a relatively straight forward split, but in a country like Russia where many of the large companies have a significant share of government ownership, the distinction is not as clear as it may appear. The share of government ownership in the Russian economy varies over time and across studies, but estimates suggest that the government could account for up to 70 percent of the economy overall and own 30-50 percent of asset (see Abramov et al., 2017) and that the share of the government in the economy has increased during Putin's days in office (Djankov, 2015).

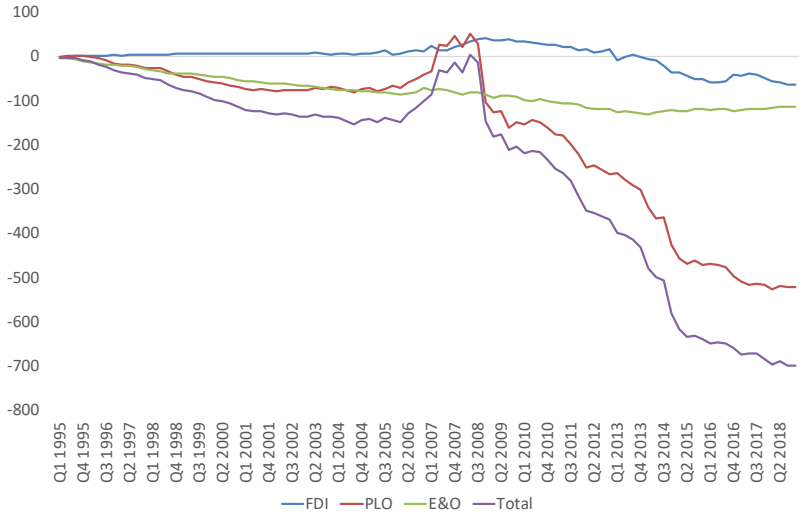
Figure 5. Private sector capital flows



Source: Central Bank of Russia

Figure 5 does not provide a very clear picture of how net capital flows have developed over time and what cumulative implications are at the macro level. Figure 6 therefore shows the cumulative net capital flows for FDI, portfolio and loans, and errors and omissions as well as the grand total of private sector capital flows.

Figure 6. Capital outflows from private sector



Source: Central Bank of Russia and author's calculations

Between 1995 and the first quarter of 2018, 700 billion dollars left Russia. This is twice as much as all of the fixed capital investments in 2017 and could obviously have boosted growth significantly if it had been invested in Russia instead. That does not mean that zero flows would have been optimal for the investors making these decisions, but it shows clearly that these flows are extremely important for the macroeconomic development of Russia. Most of

the capital left in the form of portfolio flows and loans, but at the end of the sample, all three categories contribute to the outflows. FDI was for a long time the only component that recorded a cumulative net inflow over the period, but after the global financial crisis there has been a steady outflow also in this category and these outflows accelerated in 2014. More generally, the global financial crisis represents a very clear shift in capital flows, and outflows then accelerated when sanctions were introduced in 2014 before there was some levelling off in 2018.

The question is then what factors may be behind these capital flows. In principle we should expect flows to be correlated with the returns and risk on investment in Russia versus the rest of the world. There are different ways of trying to gauge expected returns and risk, but some relatively straight forward measures can be derived from the stock markets in Russia and abroad. Here we use daily data on the Russian dollar index RTS and the S&P500 index from the US stock market. We also add daily data on oil prices since this is an important determinant of growth in Russia and also source of foreign capital that can either be invested at home or abroad. From this data, we compute the daily returns and rolling 20- and 60-days standard deviations of our series and take quarterly averages of these measures to generate series with the same frequency that we have for capital flows. This then allows us to run a regression with net capital outflows being explained by the returns and volatility of Russian and US financial investments as well as oil that are shown in Table 3.

The regression results are quite interesting. The most statistically significant variable is the volatility on the Russian market, which has the expected positive sign that indicate that increased volatility increases net capital outflows. The other statistically significant variable is returns in the US market, but there is no offsetting effect from returns in the Russian market. The oil price variables are also not significant, which is perhaps a bit surprising given their importance for growth and investments. However, it could be the case that high oil prices both generate foreign exchange earnings in Russia that could leave the country as capital flows, while at the same time, encourage inflows into the Russian economy and this estimate reflects that these two forces cancel each other out.

In principle, the relative volatility and return between the domestic and foreign market should matter for flows and if the regression is run on these variables instead, the importance of volatility is further enhanced while the return variable becomes statistically insignificant. However, the overall explanatory power of such a regression is greatly reduced and is the reason the more detailed specification above is preferred. The exact causal links and mechanisms cannot be investigated fully in this setting since there may be an effect going from capital flows from Russia to volatility in the Russian stock market. In the end however, it is clear that volatility is an important correlate of capital flows that warrant a closer look.

Table 3. Correlates of private capital flows

	Net private outflows (USD)	
	(I)	(II)
RTS volatility	34.292	
t-val	*2.98*	
RTS return	0.030	
t-val	*0.00*	
S&P volatility	13.536	
t-val	*0.79*	
S&P return	134.834	
t-val	*2.14*	
Oil price volatility	-10.582	*1.78*
t-val	*-0.94*	*0.18*
Oil price change	-45.067	*-28.07*
t-val	*-1.63*	*-0.96*
Volatility diff		29.534
t-val		*2.48*
Return diff		6.983
t-val		*0.22*
constant	-24.525	3.890
t-val	-1.18	*0.19*
Obs	73	73
Adj. R sq.	0.20	0.07

Note: *Volatility diff* is RTS volatility minus S&P volatility and *Return diff* is S&P return minus RTS return so both coefficients are expected to be positive.

Determinants of returns and volatility

The next item to investigate is how returns and uncertainty in the Russian stock market have developed and to what extent this can be understood by external and domestic factors. Again, the stock market here is viewed as a way to measure returns and uncertainty more broadly that would be correlated with capital flows, investments and likely also consumer confidence (which is not analyzed further here but is an important demand side factor for growth). There are several factors that we can expect will affect returns and volatility on the Russian stock market. First, stock markets today are linked globally, and the developments on global markets are captured by the U.S. market's S&P500 index. We also know that many of the companies on the Russian stock market are linked to the energy sector and therefore international oil prices should matter for the valuation of the RTS. The S&P500 and Brent oil price are exogenous factors so we can run a regression explaining variation in the return and volatility of the RTS with these variables as explanatory variables.

Table 4 confirm that US stock market returns and changes in oil prices have a significant impact on returns in the Russian market. The estimation show that coefficients are quite

robust to estimating the relationship since the start of the RTS index in 1995 or focusing on the years after the global financial crisis.[10] In the case of returns, the lags of US returns and oil prices changes are significant which is somewhat contrary to regular arguments about efficient markets that would immediately include all new information. The reasons for this apparent anomaly could include rather mechanical explanations such that the markets are located in different time zones, to market frictions that would lead to a somewhat delayed response.[11] The coefficients on the lags are slightly smaller in the more recent years which could be a result of reduced frictions, but the coefficients are still highly significant in both samples.

Table 4. Correlates of stock market returns and volatility

	RTS return		RTS 20 day vol	
	1995-2018	2010-2018	1995-2018	2010-2018
S&P return	0.488	0.643		
t-val	19.16	18.34		
S&P return lag	0.486	0.371		
t-val	19.01	10.55		
Brent return	0.191	0.299		
t-val	14.46	17.36		
Brent return lag	0.064	0.033		
t-val	4.84	1.94		
S&P 20 day vol			0.983	0.764
t-val			41.28	24.92
Brent 20 day vol			0.278	0.272
t-val			16.78	14.97
constant	0.025	-0.047	0.537	0.513
t-val	0.85	-1.54	15.31	14.37
Obs	6021	2282	2282	6003
Adj. R sq.	0.15	0.32	0.34	0.34

Source: Author's estimate based on market data

For volatility in the Russian market, the volatility in the US market and in oil prices are also highly significant and together explain about a third of the Russian volatility. The coefficients are again stable across the two samples and do not indicate a structural break in the relationship between the earlier and later time period. Note that the full set of explanatory variables that are included in the table were allowed to enter the first set of regressions, but

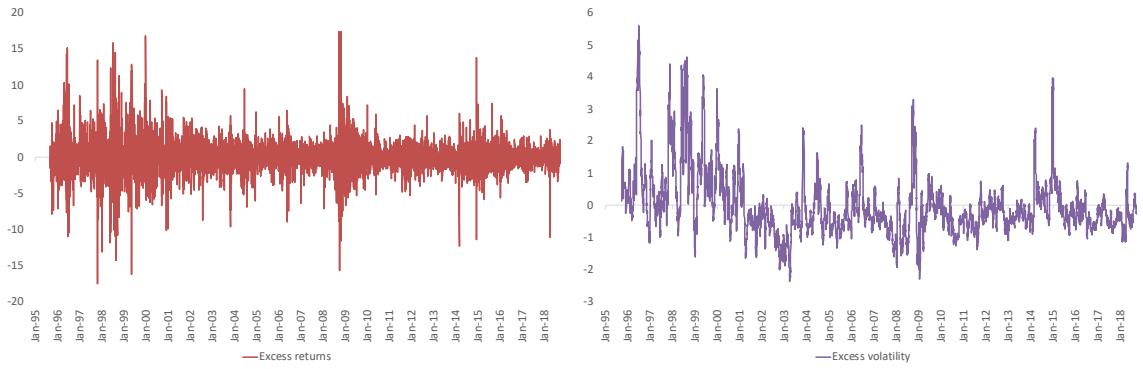
[10] Nivorozhkin and Castagneto-Gissey (2016) focus on how relationships between the Russian stock market and international markets have changed significantly after the Ukrainian crisis. This is consistent with the finding here that there are more excessive volatility and negative return days in 2014/15 than in earlier periods.
[11] Peresetsky (2011) instead uses the Japanese Nikkei index since this is closer in terms of time, but since the S&P is closer to a global stock market index and this analysis is not about market efficiency, the fact that we have to use a lag of S&P to get a good specification is not an issue.

insignificant variables were omitted from the final estimation to generate robust models from which we can compute residuals in the next stage.

The residuals computed from the estimated model above show the returns and volatility in the RTS that are unexplained by the external factors that are included in the model. This would thus include both domestic and foreign policy events that are not captured by changes in the US market or oil prices. Of course, the residuals will also include company specific factors that influence the expected performance of the Russian stock market that we would not think of as Russian domestic or foreign policy events. For this reason, the residuals are noisy signals of these factors, but we can still use the residuals to look at what happens in the market at times when we know there are important policy events taking place and we have at least filtered out two important external sources of variation in the Russian market.

The residual (or excess) returns and volatility are shown in Figure 7. It is clear that the early years of transition were more volatile also in the stock market, but at around the new millennium, volatility went down. However, this relative calm was then interrupted with the global financial crisis and then again in 2014. Since this chapter is about macroeconomic developments during the reign of Putin, we will investigate what events have coincided with large movement in the stock market since 2000.

Figure 7. Excess returns and volatility



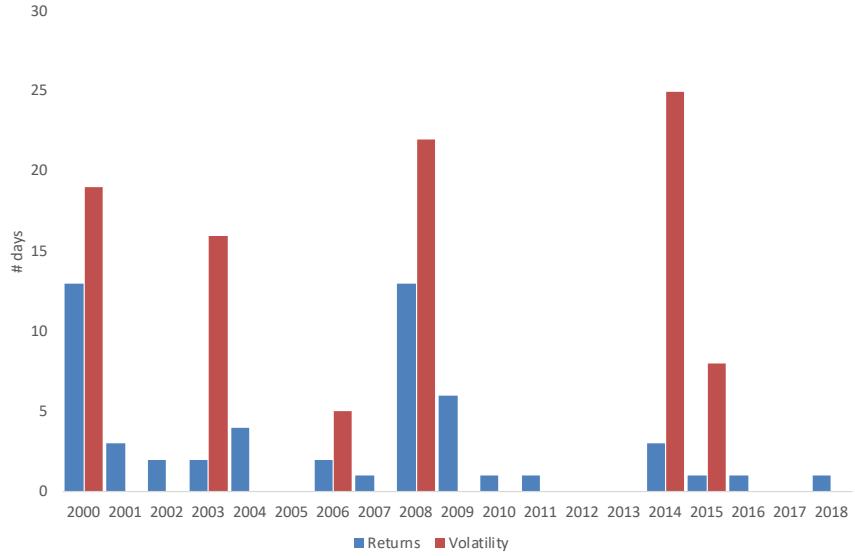
Source: Author's calculations based on data and estimations in Table 4

In order to select the events to investigate further, we focus on days where the residuals are unusually large and volatility is at extreme levels. In Figure 8 this is defined as negative daily returns of more than 5 percent and a rolling 20-day daily return volatility of more than 2. In terms of number of days with negative returns, years 2000 and 2008 stand out. Both years were associated with major events in global financial markets (dot-com crash and global financial crisis) while at the same time in 2000, Putin was elected president for the first time and Russia was fighting a war in Chechnya. As for years with high volatility, 2000 and 2008 are again high on the list, but so are 2003 and 2014 (and 2015). In 2003 there was the Yukos affair and trial of its owner Mikhail Khodorkovsky, and in 2014/15 there was the annexation of Crimea, involvement in Eastern Ukraine and long list of sanctions and counter sanctions between Russia and the West. For sure, a significant amount of volatility in the Russian market is due to external events, but an even greater amount of volatility is home-made by

Russian domestic and foreign policy decisions during Putin's term in office. It is again important to note that volatility plays a key role around the home-made events so studies that simply focus on the impact on returns and absolute levels of capital flows may miss a significant part of the effect these events will have on investments and future growth.

The observations from Figure 8 can be complemented by a listing of the most negative days on the Russian market and the days with the highest volatility. If we construct a top 20 list of the days with the most negative returns since Putin became president, 2008 stands out with 9 of the 20 days with the stock market falling by 16 percent on the worst day as Russia was hit by the global financial crisis. 2014 account for three of the 20 worst days with a one day drop of 12 percent being the worst day in 2014. Other years have one or two days of the stock market losing around 10 percent. When we instead list the 20 days with the highest volatility, 2014 and 2015 account for a stunning 18 of 20 days with the highest volatility, while 2008 only has one day on the volatility top 20 list. This again underlines how much uncertainty the annexation of Crimea and subsequent involvement in Eastern Ukraine has generated in the Russian market and most likely in the economy in general.

Figure 8. Days of large negative returns and high volatility



Source: Author's calculations based on residuals from estimation in Table 4

Since we have seen how volatility reduce capital flows that in turn lowers investments and growth, this home-made uncertainty carries significant costs both in terms of lost incomes and approval for the president. In the end, these long-run costs have to be weighed against the short-run gains in popularity that the Russian leadership enjoys.

Conclusions and outlook

Growth is a key economic indicator in Russia as elsewhere, with direct effects on the leadership's popularity even if this effect at times are overshadowed by other (often external) events. How to diversify the economy away from oil and boost long-term growth has been the subject of many policy discussion and reform programs as well as academic studies (see for example Kudrin and Gurvich, 2015). In the academic literature, the focus is often on the role

of institutions to create a business environment conducive to sustainable growth and strengthening institutions is an often-heard argument also in Russia. In particular, improving rule of law, property rights and control of corruption are mentioned.[12]

It is hard to see why this advice would not be true for Russia given its current rankings in these areas and the importance of these factors in leading academic studies of institutions and growth. However, it is hard to show that the institutional changes that have taken place in Russia along a number of dimensions including membership in international organisations, EBRD indicators or business rankings have generated growth, investment or trade within the time frames most often used. This is consistent with the finding in Sutyrin and Trofimenko (2017), where the authors look at the effect of formal institutions on FDI flows to Russia and find very little effect from changing institutions.

One reason for the apparent lack of institutional impact on growth is that so much of growth at the macro level is driven by changes in international oil prices, which is not a domestic policy variable, nor linked to institutional developments in Russia. Furthermore, specific policy actions that are not part of an economic development plan creates so much uncertainty that it has a greater effect on growth than regular economic policies. In sum, in the short and medium term, it seems that Russian policy actions speak louder than formal institutions when it comes to capital flows and investments, and thus growth.

What does it mean for the Russian outlook? Table 5 summarizes Putin's different terms in office along the dimensions that have been discussed in the previous sections. It is clear that the external factors that facilitate growth in Russia have become increasingly less supportive as we move from the first two term in office to the third. Instead of the massive increases in oil prices that Putin enjoyed in his two first terms, the third term (and the term as prime minister) saw oil prices falling. This change in fortunes was also reflected in income and investment growth, exchange rates, stock market returns and approval ratings.

The fourth term in office for Putin starts in a time of sanctions and counter sanctions, volatile oil prices and a general uncertainty in the global economy about trade, financial systems and global growth. As the external environment in general and outlook for oil price increases in particular are less supportive of growth, the priority of the president and his economic team should be on policies and actions that facilitate investments that will generate high growth. This is very much in line with the modernization and diversification agenda that has been repeated many times in Russia but not been implemented. To make the strategy work this time the focus should be on a combination of institutional reforms that create a stable business environment and offer incentives for innovative foreign companies to make investments in Russia. Reforms on paper will not be enough but have to be followed up with a consistent path of implementation and avoiding short-run fixes that undermine long-run institutional capital.

[12] See for example Knack and Keefer (1995) and Knack (1996) about property rights institutions, Mauro (1995) on corruption and growth, and Acemoglu et al (2014) on the importance of democratic institutions for growth.

Table 5. Putin's record on growth and its correlates

	Putin I 2000	Putin II 2004 Q2	Medvedev 2008 Q2	Putin III 2012 Q2	Putin IV 2018 Q2
Approval rating (Levada poll)	84	72	83	64	79
GDP (2008 RUB)	45443	61004	81936	85208	88158
% change	*34*	*34*	*4*	*3*	…
GDP (USD bn)	209	541	1674	2117	1640
% change	*159*	*209*	*26*	*-23*	…
Oil price	25	36	141	95	77
% change	*44*	*292*	*-33*	*-19*	…
RUB/USD	25	29	24	33	63
% appreciation	*-14*	*21*	*-27*	*-48*	…
Investments (USD bn)	30	100	358	450	348
% GDP	*14.4*	*18.5*	*21.4*	*21.3*	*21.2*
% change	*29*	*16*	*-1*	*0*	…
FDI inflows (USD bn)	22	163	183	200	…
Private net capital inflows (USD bn)	-54	148	-357	-341	…
Stock market index	175	585	2243	1357	1151
% change	*234*	*283*	*-40*	*-15*	…
# days with extreme volatility	*35*	*5*	*22*	*33*	…

Note: Approval rating, oil price, exchange rate, and stock market index are measured at start of period. GDP and investments are the levels at the start of the period computed as the sum of the four most recent quarters. FDI inflows and private net capital inflows are the cumulative flows for the duration of the presidential period, where a negative inflow is a net outflow.

The previous analysis has shown that policy actions in the past have overshadowed the role of formal institutions and this lesson has to be kept in mind when implementing a new growth strategy. It is therefore crucial that the president refrain from external policies that in the short run detract from economic shortcomings but in the process also generate more uncertainty that is detrimental to capital inflows, investments and higher growth. The economist's choice of generating political support through high growth by reforming institutions and avoiding policies that create uncertainty is obvious, but possibly not the most likely choice of Putin in the current domestic and external environment.

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