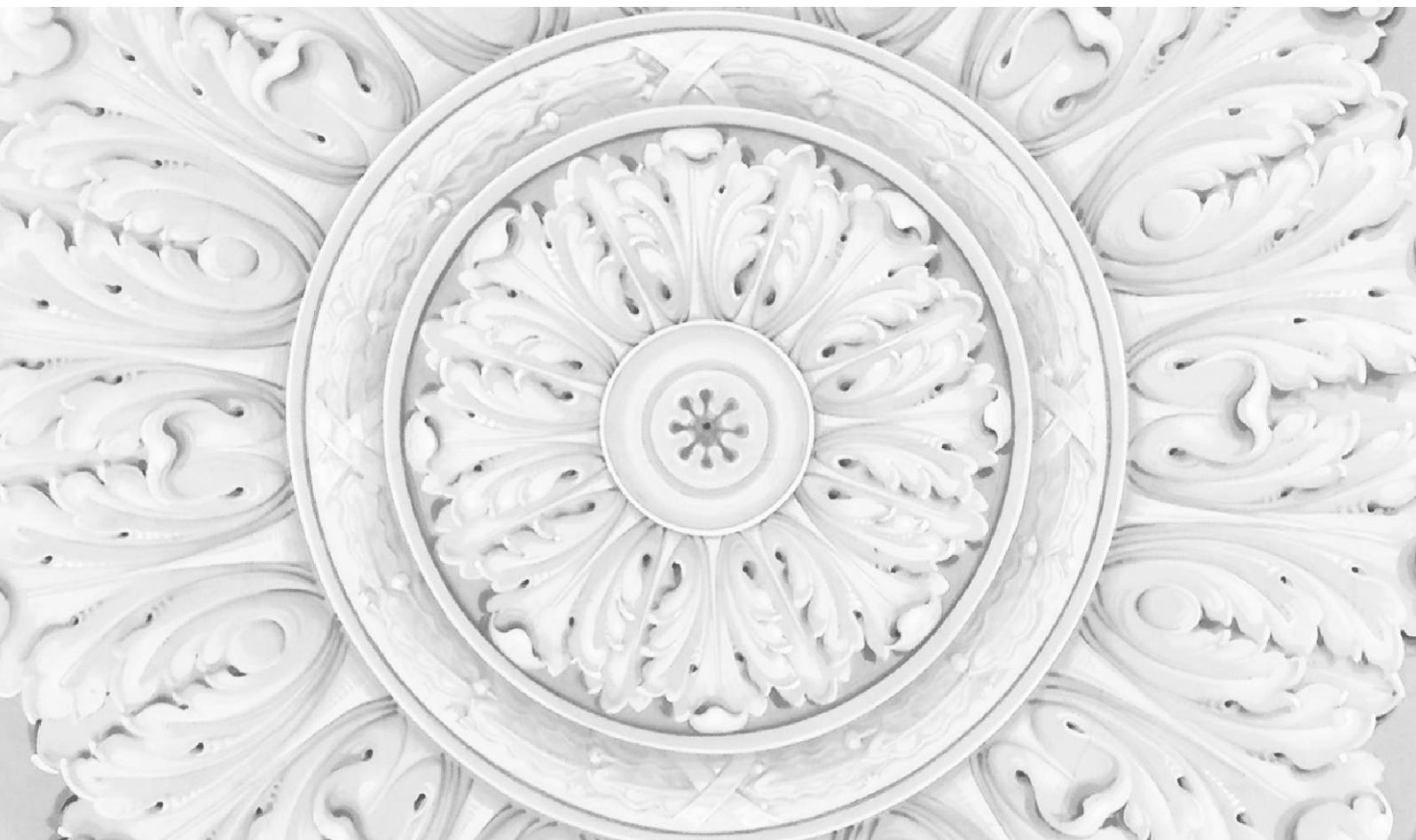




**Bank of Russia**

The Central Bank of the Russian Federation



## **Talking Trends**

Macroeconomics and Markets

March 2016

**Research and  
Forecasting  
Department Bulletin No. 5**

*The views expressed in the Bulletin  
are solely those of the authors and do not necessarily reflect the official position of the Bank of Russia.*

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## Executive summary

### 1. Monthly summary

- **In March**, price growth continued to slow, the economy balanced between recession and stagnation, risks to stability of the Russian financial markets went down.
- **Inflationary pressure** in March eased stronger than expected, driven by monetary policy. Ruble appreciation and the impact of temporary favourable factors in the food market made a positive contribution to decrease in inflation. However, **risks of inflation exceeding the 4% target** in 2017 are still high due to persistent uncertainty surrounding the fiscal policy, slow decline in inflation expectations and possible termination of temporary favourable factors.
- The **production** dynamics signal higher stability of the economy to negative oil price shocks. The risks of a new spiral of recession failed to materialise. Individual sectors and industries show structural shifts towards the tradables sector, as well as higher output.
- Although the BoR key rate has been kept on hold, **monetary conditions are continuing to ease** following the gradual shift from structural liquidity deficit to surplus.

### 2. Outlook

- The soft stance of major central banks' monetary policy suggests that the threat of a slowdown of the global economic growth has reduced. However, medium-term risks remain high as the prospects of effective transformation of the Chinese economy are still uncertain.
- Russian leading business indicators suggest that sustainable economic growth recovery is not very likely in the months to come, through the economy is picking up after the winter drop in oil prices.

### 3. In focus: The impact of informal employment on GDP and inflation

- The informal employment phenomenon curbs unemployment growth in this time of crisis...
- ...but the persistently sustainable growth of informal employment may aggravate structural problems in the labour market and trigger additional inflation risks in the medium term.

## 1. Monthly summary

### 1.1. The current drop in inflation is largely explained by the temporary factors coming into play, with the risks inflation may move away from target

Inflationary pressure in March abated more than expected, driven by the monetary policy. Support came from a stronger ruble, together with the arrival of temporary favourable drivers in the food market. However, the risks that inflation may exceed the 4% target in 2017 are still high; these stem from the uncertainty over the fiscal policy, slowly declining inflation expectations and the probable cessation of the impact from the temporary favourable factors.

#### *1.1.1. The slowdown in food inflation is caused by a few factors beyond demand constraints*

- Food products are known for weaker demand elasticity compared to non-food, which makes it impossible to attribute slowly rising food prices to weak demand only.
- Growth of food prices is checked by several factors on the supply side (globally declining food prices, last year's rich harvest and abundant production of several products). Some of these drivers are temporary in nature.
- The strong slowdown in seasonally adjusted growth on fruit and vegetables in H1 could well be succeeded by a more significant than usual price acceleration in H2.

Annual inflation showed a notable slowdown in the last few months, which may be explained, to a large extent, by the high base of the past year. Annualised rates of food price growth, much to our surprise, showed a strong slowdown: in February and March these were lower than those for non-food products and services (Figure 1). A proper explanation to this could be the withdrawal from annual inflation estimation of the high rates of price growth seen in the start of the past year<sup>1</sup>. However, as we look into seasonally adjusted price dynamics of the three key consumer price index (CPI) components, we could point to other factors which are behind the slowdown in food product prices, beyond the high base effect (Figure 2).

The strongly slowed nominal income could have come about as a result of weaker overall pressure caused by, inter alia, minor pension and salary indexation in the public sector. Theoretically though, this could make itself more evident in non-food, rather than food, prices, with the known smaller price elasticity of the latter. Our view is that the slow-

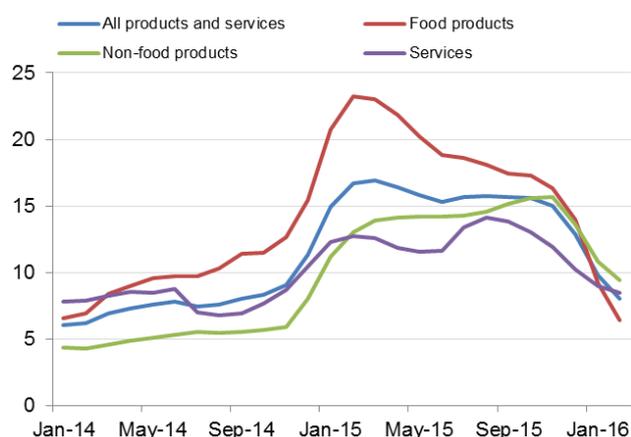
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<sup>1</sup> Food inflation was much stronger than that for non-food products and services, hence, all other things being equal, a symmetric drop in inflation could be envisaged in one year's time.

down in food inflation is triggered by, beyond low demand, by a number of other factors which are on the market supply side, viz.:

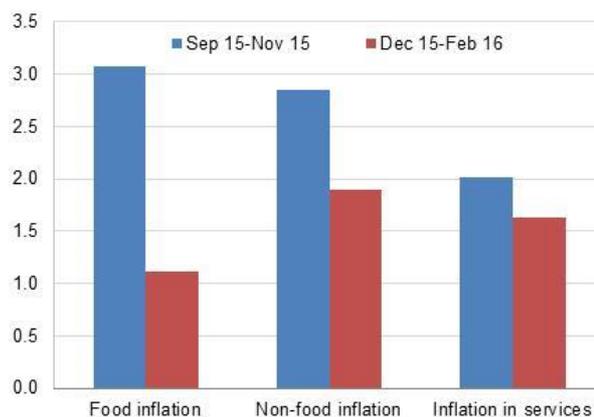
- global food prices dropping globally;
- rich 2015 crops in Russia;
- rising production of individual products against the backdrop of weak demand.

**Figure 1. Inflation and its components,% YoY**



Source: Rosstat

**Figure 2. Seasonally adjusted inflation, % for three months**



Sources: Rosstat, R&F Department calculations

### *The global drop in food prices*

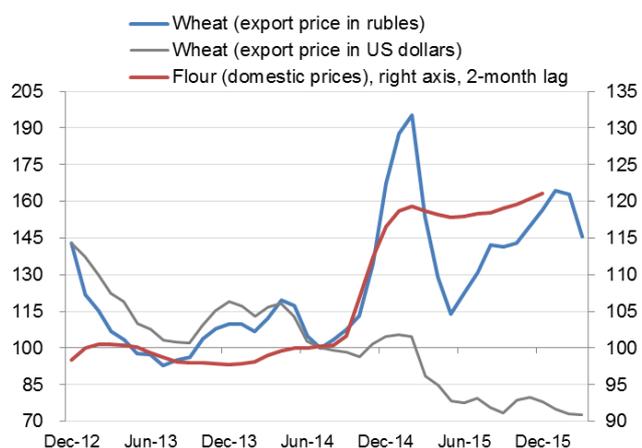
In the second half of 2015 and early 2016, world food prices were declining substantially, which can have brought about the slowdown in the growth of domestic food prices by setting off the pass-through effect from a weaker ruble. In a scenario where a weaker ruble is accompanied by lower forex-denominated commodity prices, ruble-denominated prices will grow slower or even fall if the global prices drop deeper than the ruble. The ensuing growth in the price for some products could be slower as compared to overall inflation dynamics. Our inflation decomposition confirms (see Section 1.1.2. ) the impact of global price movements on food inflation in Russia.

The price of wheat, for instance, was rising very slowly after a sharp upsurge seen in the period between late 2014 and early 2015, which is quite comparable to the performance of ruble-denominated wheat prices<sup>2</sup>: the weaker ruble was offset by a 30% drop in dollar prices on wheat, which contributed, among other things, to the stability of ruble prices<sup>3</sup> (Figure 3 and Figure 4 ).

<sup>2</sup> Food inflation in Russia, in its turn, is tracking the performance of global wheat prices.

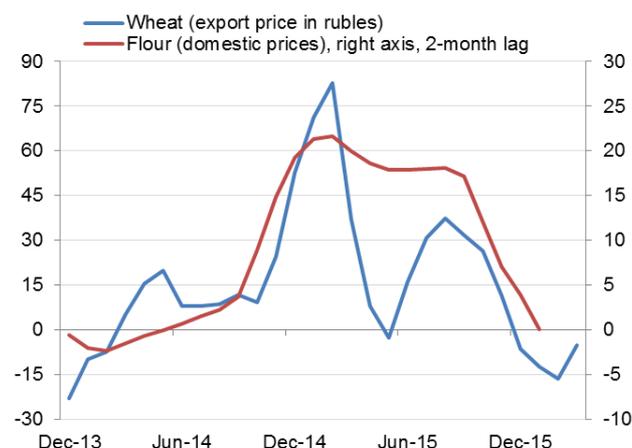
<sup>3</sup> The volatility of export price in rubles is by definition higher than that of domestic wheat prices, because of the internally generated rate's volatility.

**Figure 3. Wheat and flour prices  
(index, July 2014 = 100)**



Sources: Rosstat, Bloomberg Finance L.P.

**Figure 4. Wheat and flour prices  
(growth, % YoY)**



Sources: Rosstat, Bloomberg Finance L.P.

### Rich crops in 2015

Vegetable and fruit prices will grow at a much slower pace than envisaged in line with regular seasonal trends. In March, the prices of this product category were down 1.3%, which is abnormal for a spring period<sup>4</sup>. We believe that the slower price acceleration is down to a set of factors beyond demand-side constraints, as long as everyday products, including fruit and vegetables, are supposed to show weaker demand elasticity in terms of prices<sup>5</sup>.

The slow growth of vegetable and fruit prices may well be attributable to the rich crops in 2015. These hit a record volume of 16.1 million tonnes, 3.9% higher than 2014. The growth in vegetable and fruit prices tends to be a lot weaker in the year that follows the harvest-rich one. This is evident from the performance of vegetable prices in the first three months of each year, for the last 14 years (since 2002)<sup>6</sup> (Figure 6). This conclusion could relate to high stocks of vegetables accumulated for a year of rich harvest, which would check the expansion of prices in winter and spring.

The rich crops of the past year could well explain the relatively weak price acceleration in early this year, despite the weaker ruble (Figure 5). With appropriate food stocks following the fruitful year, the off-season demand for imports tends to decline, reducing the overall price sensitivity of fruit and vegetable to exchange rate fluctuations.

The less vivid seasonality in fruit and vegetable price dynamics has induced a reduced short-term pass-through effect as the ruble was weakening in between late 2015

<sup>4</sup> Vegetable and fruit prices will normally rise from between October and November and continue to rise through the period between May and July until the arrival of new crops grown in the open ground.

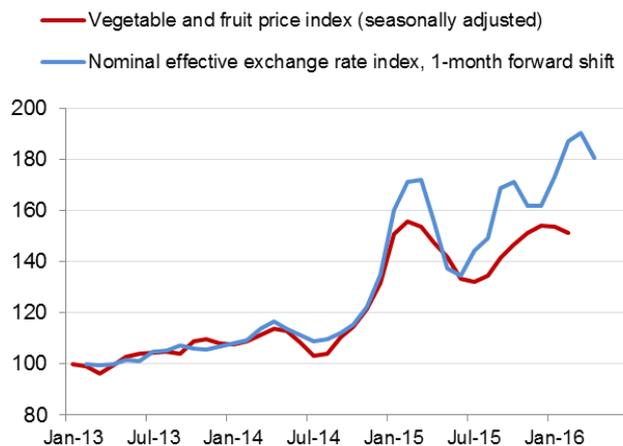
<sup>5</sup> The exception to this could be premium vegetable and fruit in the off-season period.

<sup>6</sup> In case of potatoes these conclusions also hold true, with potato crops in 2015 having grown as well to hit an all-time high since 1997.

and 2016. It also triggered lower estimations for seasonally adjusted prices in Q1, given that seasonal adjustment is built on the 'normal' seasonality assumption.

Hence the possible lower estimate for the impact of current inflationary developments. The other reason is the constraining pressure coming from global food prices, which are in decline.

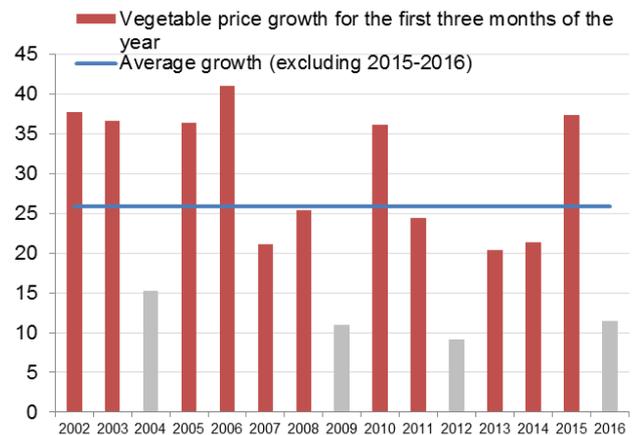
**Figure 5. Vegetable and fruit prices and ruble exchange rate**



Sources: Rosstat, R&F Department calculations

Index count base – December 2012.

**Figure 6. Vegetable and fruit prices for first three months of year, %**



Sources: Rosstat, R&F Department calculations

Grey-highlighted are the years following the years with rich crops; 2016 data are only those for the first two months.

Importantly, the low, compared to the usual seasonality, pace of vegetable and fruit price growth comes laden with inflationary pressure in the second half of the year:

- Seasonality is distorted by last year's good crops as prices early in the year tend to grow slower than usual. The implications are that, all other things being equal, the decline in vegetable and fruit prices in Q3 is set to narrow. Between 2002 and 2013<sup>7</sup>, the drop in prices on vegetables in Q3 was about 31%. In the years when the first three months showed a moderate growth in prices on vegetables, the prices would drop less, by approximately 21%. Hence the less vivid seasonal drop in vegetable and fruit prices in the second half of the year and the monthly consumer price acceleration with seasonal adjustment. We estimate the add-on to inflation in the second half to total between 0.7% and 1.2%, depending on the 2016 crops.
- In 2015, crops of vegetables and potatoes grew mainly on the back of higher yields, rather than on the back of rising crop areas<sup>8</sup>. Hence the stronger risk of a

<sup>7</sup> Our calculations ignore 2014 and 2015 on the grounds that these were the years influenced by the pass-through effect of exchange rate, with its higher volatility.

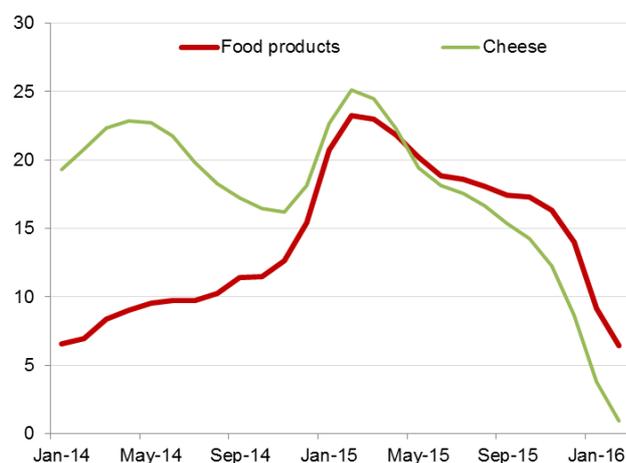
<sup>8</sup> Potato crops grew 6.7% with a 0.8% rise in the crop area; vegetables grew 4% with a 1.7% rise in the crop area. A similar trend was seen in 2014, when the crops rose on the back of higher crop yields. Potato

minor price contraction in the second half of the year (provided that this year's yields are lower than in 2015 and the crop areas remain essentially level).

### *Growing production of individual products against weak demand*

The implications of demand constraints are not to be viewed separately from the developments in one product category or another. Amid a slowing or dropping demand, the impact on prices could vary depending on supply developments. For instance, if the supply of goods is dropping faster than its demand, its price could grow; while supply growing on the backdrop of weaker demand could cause the price to drop substantially.

**Figure 7. Price appreciation, cheese and food products, % YoY**



Sources: R&F Department calculations, Rosstat

**Figure 8. Cheese and cheese products production, tonnes**



Source: Institute for Agricultural Market Studies

A clear example of reduced price pressure could be seen in the cheese and cheese products market. With the sanctions in force and the import substitution programme advancing, the production of cheese and cheese products grew 20%<sup>9</sup> (Figure 8), and the added production surpassed the shortfall in imports. With the drop in consumption of milk and dairy products<sup>10</sup>, including cheese to consider, it may well be the case of overproduction. Furthermore, as the import substitution programme develops, there has been a rise in both production and consumption of popularly prices for cheese (soft and processed cheese). This is why the sharp price deceleration looks reasonable enough.

Of some interest is the performance of annualised meat prices, especially chicken and pork, which dropped between January and February (Figure 9 and Figure 10). Importantly, beef was rising faster than poultry and pork, which is explained by the higher

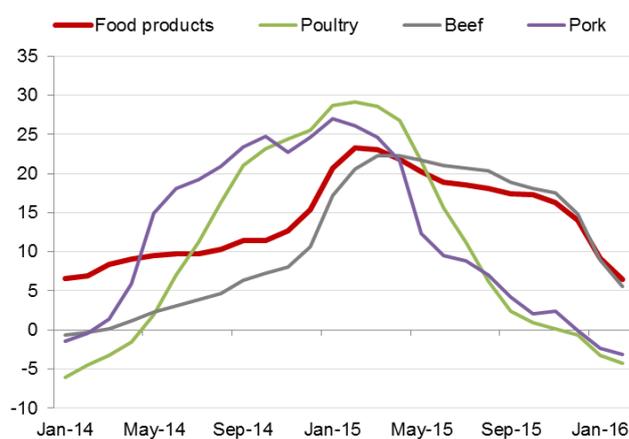
crops grew then 3% with a 1.9% drop in the crop area; vegetables grew 2.3% with only a 0.1% rise in their crop area.

<sup>9</sup> Soyuzmoloko data (January-November 2015 on January-November 2014).

<sup>10</sup> 2–3% in 2015, according to Soyuzmoloko.

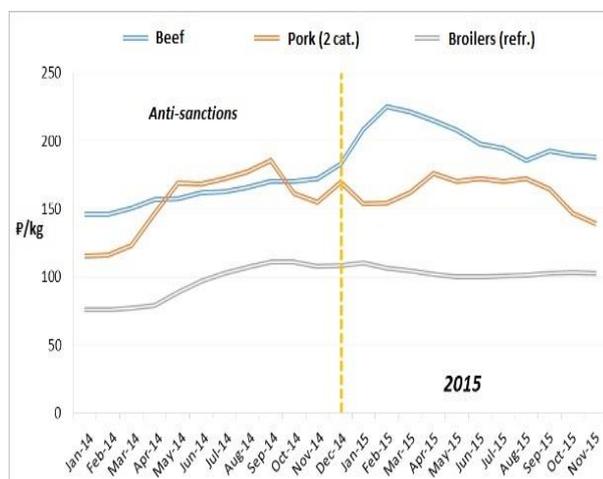
share of imports in the sales structure of beef and the ensuing stronger impact from a weaker ruble.

**Figure 9. Meat prices, % YoY**



Sources: R&F Department calculations, Rosstat

**Figure 10. Wholesale meat prices, ₺ / kg**



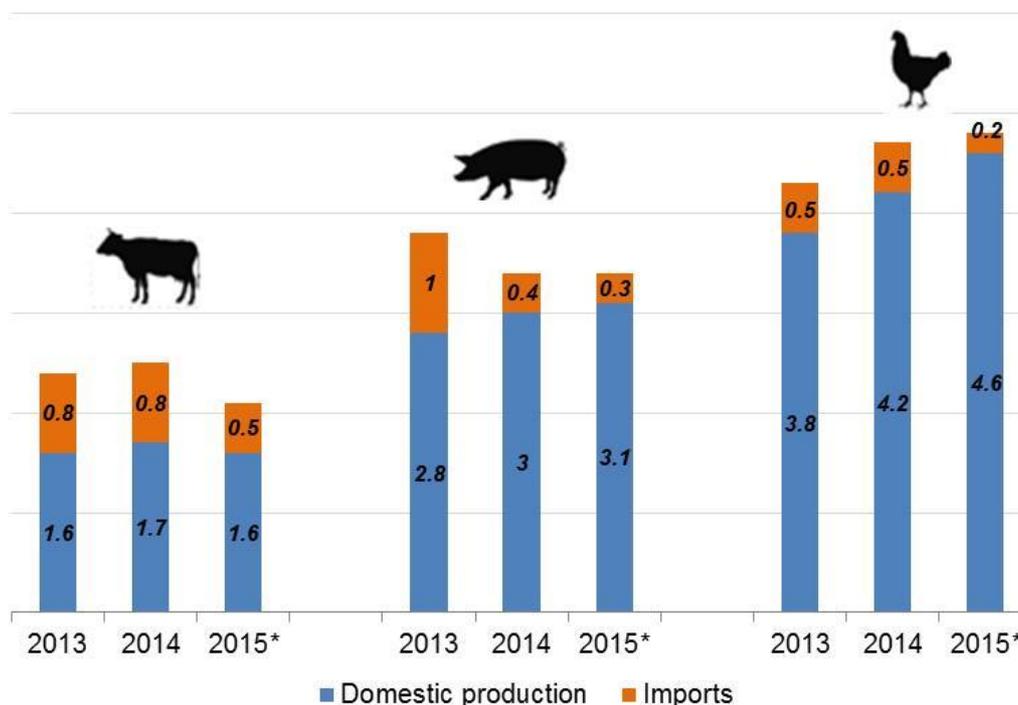
Source: Institute for Agricultural Market Studies

Chicken prices are declining, while its consumption is growing. In 2015, the prices dropped 5%, while the production of poultry (carcass weight) grew 8%. The expanding production offset the shortfall in imports (Figure 11) but failed to take the market out of overproduction, putting the prices under pressure. The Institute for Agricultural Market Studies, in its article with a summary of the 2015 agricultural market<sup>11</sup>, mentions a few cases when chicken and pork stock was selling below market. The excessive stock, accumulated with major producers, was instrumental in constraining overall price growth. Dropping chicken prices, in their turn, were checking prices on pork and beef. The cheapest source of animal protein, chicken is the product consumers tend to refocus on in a situation of growing pork and beef prices<sup>12</sup>. The scheme helps check the overall growth of meat prices.

<sup>11</sup> URL: <http://www.ikar.ru/lenta/564.html#meat>

<sup>12</sup> Pork is affected to a larger degree. Cross elasticity of beef demand against chicken price is not overly high.

Figure 11. Meat market capacity, mln tonnes



Source: Institute for Agricultural Market Studies

All the three schemes, when inflationary pressure on food products is lowered, can operate retroactively: in the aggravating situation scenario, they can generate price pressure. When global food prices are beginning to grow, they could, other things being equal, trigger some growth in domestic food prices<sup>13</sup>. Poor harvest can also spur prices, while excess production can lead to more exports<sup>14</sup> or less production as loss-making businesses shut down.

Plus, the tailwind of these two phenomena is non-recurrent. The past year's crops would normally affect vegetable and fruit prices through the time new harvest is collected, and the global slump in the price of food cannot go on forever<sup>15</sup>. In this context, the Bank of Russia should forgo monetary policies as might be pursued in response to these onetime shocks so as to keep from creating prerequisites for excessive softening of monetary stance as the effect of these shocks becomes depleted.

<sup>13</sup> That is, if the ruble exchange rate is stable.

<sup>14</sup> The process is far from being quick, complicated by the need to obtain large numbers of sanitary permits; however, already in 2015 the exports of food products were starting to show expansion.

<sup>15</sup> The drop in global food prices from the peak seen in 2011 is currently 30%. Since 1991, this extended and deep drop was recorded only once, between 1995 and 1999, when the drop was on the order of 38-39%.

### **1.1.2. The implications of monetary factors, global food prices and exchange rate for inflation in Russia**

- Monetary factors are the key contributor to inflation, although their importance was growing somewhat weaker over the last year, and their contribution to inflation was well below the values seen between 2006 and 2008.
- The global food prices, declining since mid-2014, served as a certain deterrent for 2015 prices.
- A change in external conditions comes laden with the risks of emerging inflationary shocks, either negative or positive.

Unless broken down by separate components, the picture of price acceleration is not informative enough. The decomposition of inflation enabled us to gain a deep insight into which components are responsible for its performance. The conditional monetary component and non-monetary inflation components were established. The factors considered as non-monetary components included the currency exchange rate, railroad rates, utility prices and the global agricultural product prices<sup>16</sup>.

#### **R&F Department inflation decomposition methodology**

According to the methodology, inflation was broken down into four components: monetary inflation, the exchange rate, food prices and other<sup>17</sup>. The latter component is made up of any unaccounted-for factors which are impactful on inflation, albeit with very minor effect, or such which could hardly be quantified at all (e.g., the impact on inflation from the demand side). The decomposition was based on monthly data for the period between 2006 through 2016. The econometric model used the new inflation seasonal adjustment<sup>18</sup>, with the relative data available since 2006, which was behind the decision on the period for the assessment.

'Monetary' inflation was computed through singling out the common low frequency component in the performance of several indicators, representative of nominal processes in the economy. We proceed from the assumption that this component is unexposed to specific shocks which are not common to all indicators or to short-term fluctuations which can be neglected for the monetary policy purposes. The calculations are based on the dynamic factor model. As nominal indicators, the CPI and seven other indicators were used, the majority of them being common domestically generated inflation indicators: prices of services, housing prices, fixed capital investment deflator, GDP deflator, unit labour costs, M2Y monetary aggregate, and the ruble nominal effective exchange rate. The calculations used monthly seasonally adjusted (interpolated if necessary) growth rates. The same method was applied to calculate the monetary component in the exchange rate performance.

Thereafter we looked into the effect of other factors on the non-monetary inflation component, as is the result of the monetary component subtracted from the actual inflation. The exchange rate performance was also adjusted for the previously computed monetary component. This was followed by a simple regression equation to quantify the impact of exchange rate and global food prices on the non-monetary inflation. The unaccounted-for performance was classed as 'Other' (Figure 12).

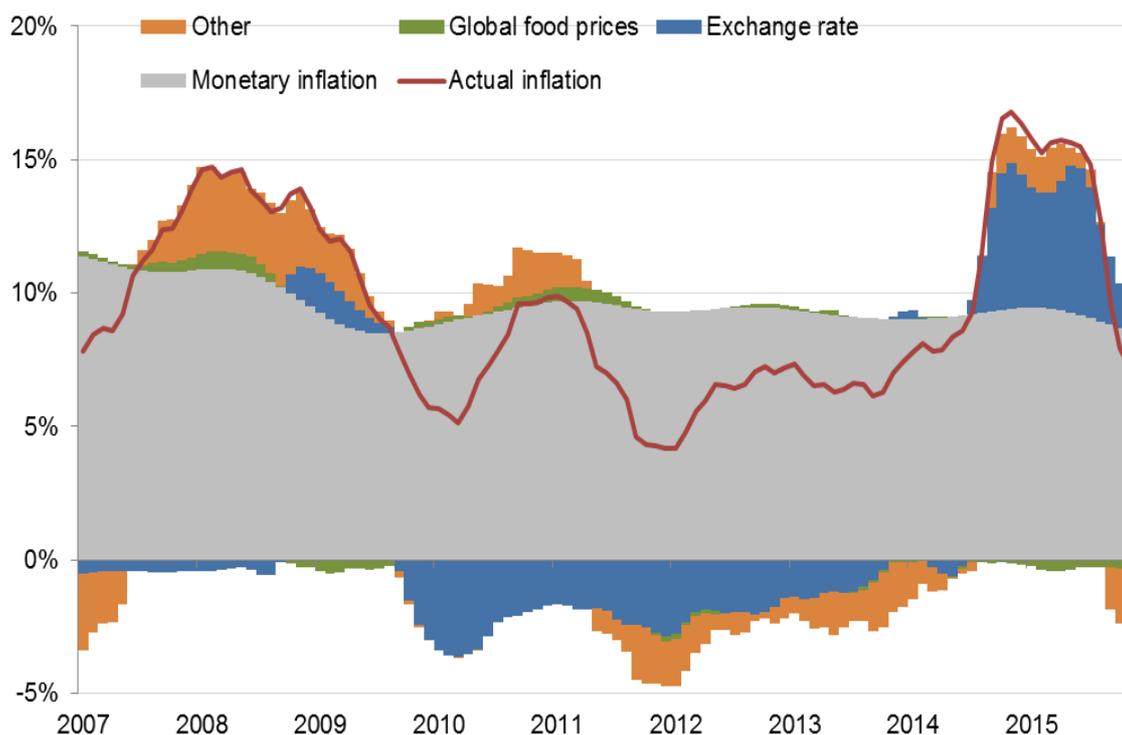
<sup>16</sup> We assume global food prices to impact on domestic prices as long as much of food products consumed in Russia are exports.

<sup>17</sup> The analysis found the government-regulated rates to exert only minor pressure on inflation, which is why these components were withdrawn from the analysis and classed as 'Other' in our model.

<sup>18</sup> For details of the methodology see ['Talking Trends' No. 4, February 2016, Section 3](#) 'In focus. The seasonal adjustment in consumer inflation problem'.

The calculations showed (Figure 12) that the exchange rate pass-through effect weighs on prices for half a year. Most of the exchange rate pass-through effect falls on the first three months and totals circa 0.13, with the aggregate effect of 0.19<sup>19</sup>. Global food price changes also put pressure on inflation, remaining in effect for four consecutive months. Their aggregate effect proved equal to 0.03.

**Figure 12. Inflation decomposition, % YoY**



Source: R&F Department calculations

Monetary inflation accounts for most of overall inflation. Importantly, it was somewhat down over the course of the last year, while it is appreciably less than seen in 2006-2008. As suggested by this decomposition, all price acceleration seen between late 2014 and early 2015 was essentially down to the ruble weakening. The impact of this effect on annual inflation recedes as this price upsurge gradually quits the basis for calculation. The drop in global food prices since mid-2014<sup>20</sup> was putting some downward pressure on prices in 2015 (with a contribution of circa -0.5 pp).

The results of these calculations should be treated very carefully. One of the drawbacks of the decomposition as presented would be the assumption that the exchange rate pass-through effect is constant in time. However, this effect is more flexible and will at time change both in scale and in specific economic activity. For instance, the growth of prices with a high export component in early 2016 was a lot more modest than early last

<sup>19</sup> The pass-through effect of 0.19 means that a 1% weakening / strengthening in the exchange rate, other things being equal, will result in a 0.19 pp acceleration (slowdown) of inflation.

<sup>20</sup> The IMF-calculated global food price index is down 27% in the period between April 2014 and February 2016.

year. This is caused by, inter alia, a fading exchange rate pass-through effect. As regards the decomposition as presented, this aspect is expressed in the arrival of negative contribution from 'Other factors' over the last 2-3 months.

These drawbacks notwithstanding, the decomposition model as described enables to see that changing external conditions could induce sufficiently strong inflationary shocks in either side.

#### **Regarding the current exchange rate pass-through effect on prices**

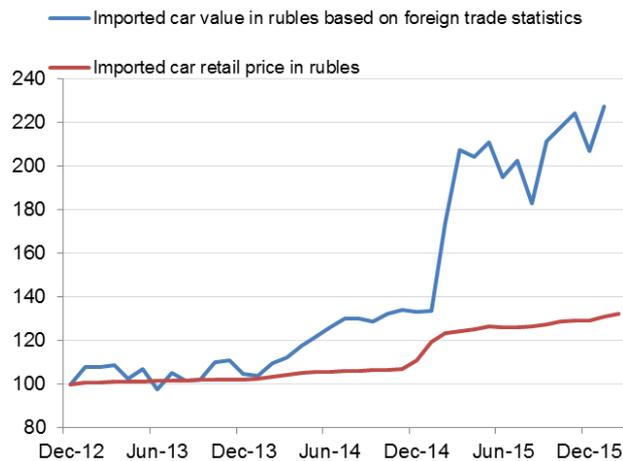
There are a few explanations as to why the exchange rate pass-through effect seems weaker than one year ago. According to one of these, sellers knowingly refrain from imputing the growing costs, as relate to a weaker ruble, to consumer prices, so as to counter, among other things, weak demand and retain market share. Manufacturers and resellers have to sacrifice some of their margin which, in some cases, could be zero or even negative. This approach is affordable for major international corporations, as Russia in their sales structure is but a small part. Therefore, they can carry on operations notwithstanding this temporary drop in margin. However, this situation cannot linger on, and with the onset of sustainable recovery in consumer demand suppliers will raise selling prices even with costs unchanged so as to restore the margins to an appropriate level. This is another risk for accelerated inflation in the second half of this or next year.

The above explanation is supported by developments in the car market, in particular, the market of imported cars. We calculated the cost of Russia-bound cars in rubles and compared consumer prices on foreign brands (Figure 13). The resulting average dollar price of imported cars in 2015 was practically unchanged against 2014 (circa \$18,500). It goes to show that the ruble value of a foreign car has since the start of 2014 risen almost 120%<sup>21</sup>, while retail prices rose only 28%. This implies that importers' (and manufacturers') margins have dropped substantially and may have become negative.

This is indirectly evidenced by annualised price acceleration across various car classes. Despite the strong ruble weakening of late 2015 - early 2016, prices on foreign cars were growing slower than domestically manufactured (Figure 14). No Russian manufacturer can currently boast any safety margin to hold prices as long as they have been operating at a loss. Russian manufacturers have a long way to go to reach a 100% localisation, which makes them shift the burden of growing costs of component parts to retail prices.

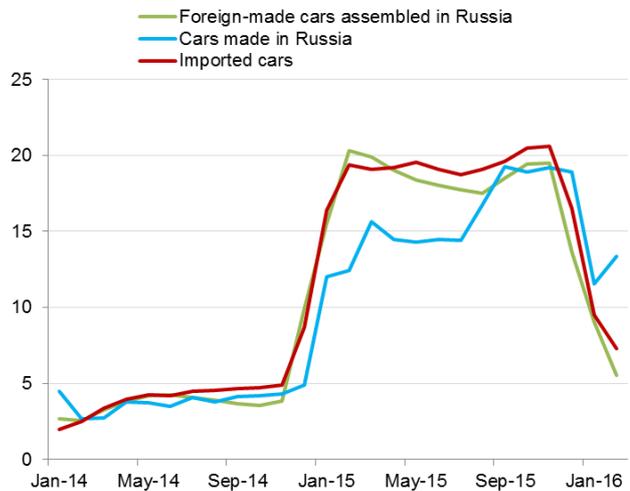
<sup>21</sup> As of January 2016.

**Figure 13. Ruble value of foreign cars and their retail prices**  
(index, December 2002 = 100)



Sources: Rosstat, R&F Department calculations

**Figure 14. Car retail prices, % YoY**



Sources: Rosstat, R&F Department calculations

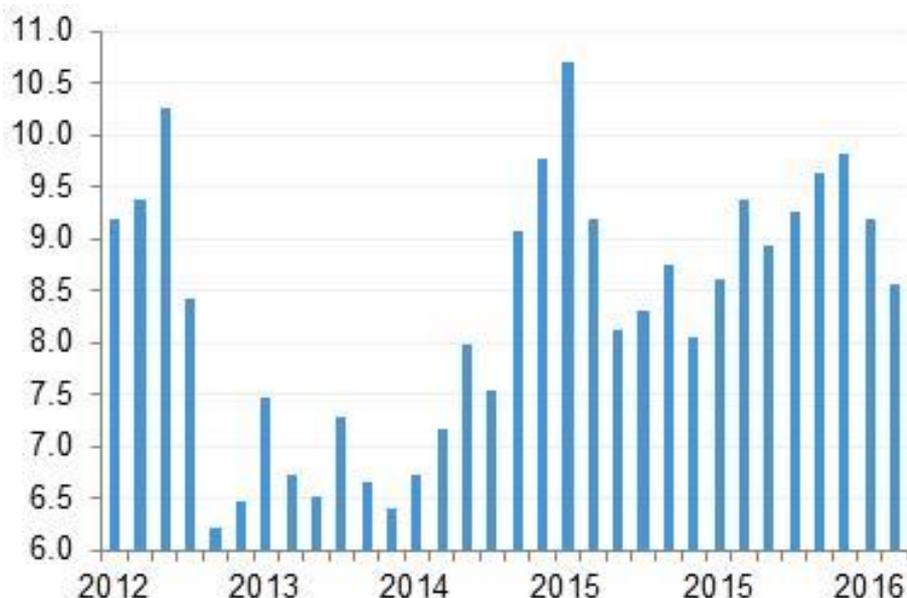
### 1.1.3. Inflation expectations in March: the drop has not been persistent

As seen from inFOM March survey, R&F Department-adjusted for systematic overstatement, inflation expectations in March were down from 9.2% to 8.5% (Figure 15)<sup>22</sup>.

The pattern of inflation expectations is to a large degree determined by several tailwinds that are most likely to be temporary. In this connection, it is premature to discuss a sustainable trend towards declining inflation expectations, with inflation risk remaining high.

<sup>22</sup> For the calculation methodology please refer to the previous Bulletin issue (see Bulletin ['Talking Trends' No. 3. January 2016](#), Section 1.3.2 'Inflation expectations continue growing in January').

**Figure 15. Direct inflation expectation estimates by inFOM LLC adjusted for their regular overrating, % YoY over a calendar year**



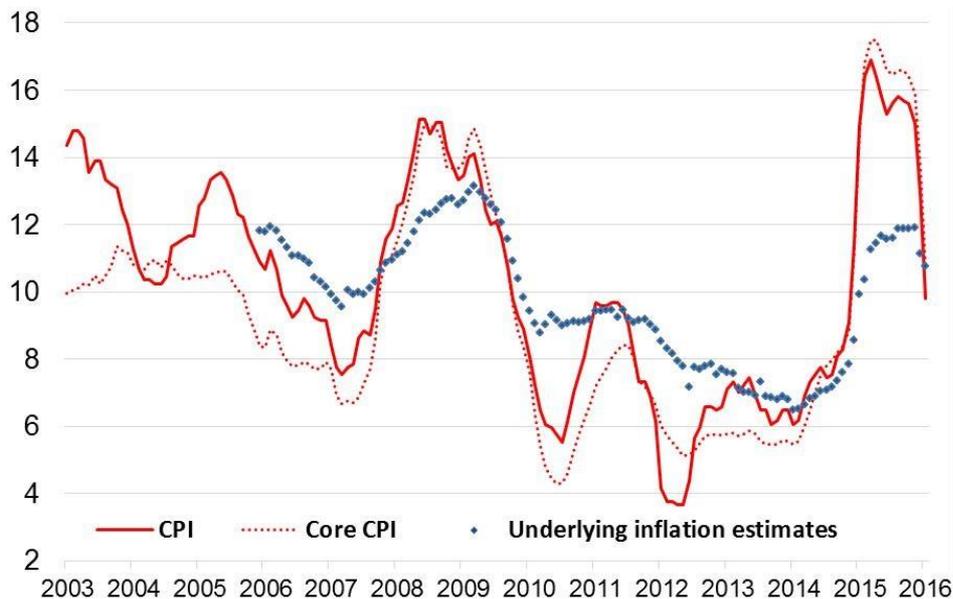
Sources: Rosstat, inFOM, R&F Department calculations

#### **1.1.4. Underlying inflation is continuing to recede slowly**

- The estimate for annualised underlying inflation in February<sup>23</sup> is down to 10.5% (Figure 16).
- On condition that the current price performance remains in place, gradual reduction in underlying inflation is expected to be seen. However, should escalated inflation risks materialise, underlying inflation is set to decrease at a slower rate.
- A slower drop in the pace of underlying inflation provides evidence to the following: 1) the slowdown in actual inflation, beyond the base effect, could be attributable to the effect of temporary tailwinds (see Sections 1.1.1 and 1.1.3); 2) the risks of inflation moving away from the target in late 2017 remain high.
- Our estimates suggest that the base effect-related fluctuations are notably stronger in the annual CPI readings than those in the annual paces of underlying inflation (Figure 17).

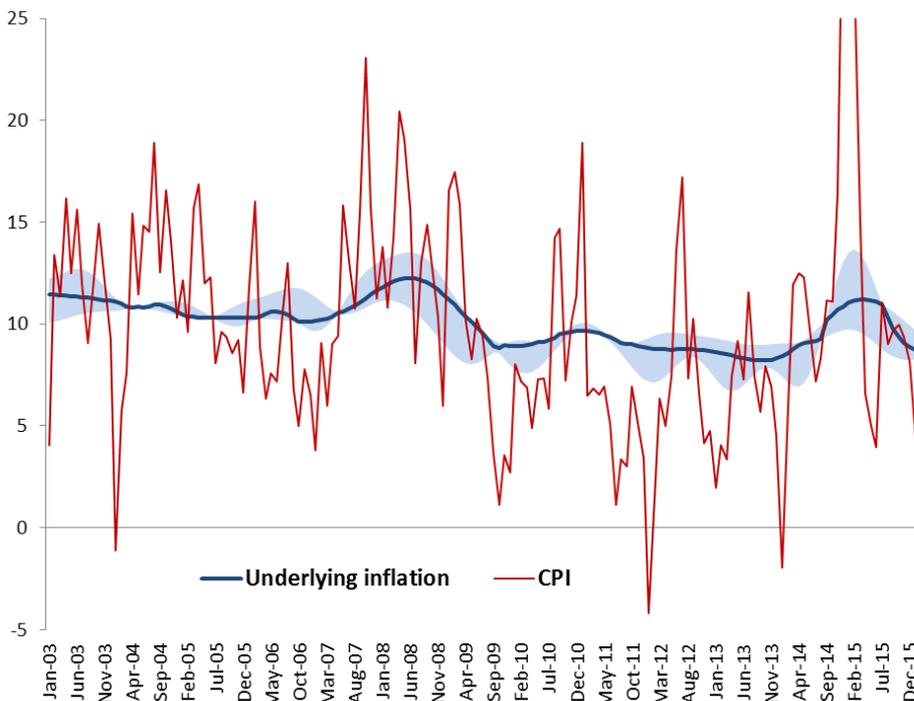
<sup>23</sup> The estimates for underlying inflation in March are due in the second half of April, once inflation statistics are released by Rosstat.

**Figure 16. CPI, core CPI and historical estimates of underlying inflation, % YoY**



Sources: Rosstat, R&F Department calculations

**Figure 17. CPI and underlying inflation (value range and its midpoint), monthly increments in annual terms, %**



Sources: Rosstat, R&F Department calculations

### ***1.1.5. Balance of payments: high ruble exchange rate sensitivity to external shocks comes laden with inflation risks***

- The substantial drop in the current account surplus this year necessitates a further sustainable reduction in capital outflows. This adds to the ruble's sensitivity to global financial market shocks.

The preliminary estimate of the RF balance of payments for the period between January and February shows a decrease in the current account surplus against the same period last year (\$9.7 billion in 2016 against \$19.4 billion in 2015). The likely explanation is, first of all, the declining export balance of trade on the back of the past winter's slump in the price of crude.

The online statistics on the financial account, in their turn, suggest that capital outflows are continuing to slow down. Russian banks have reduced their repayments of foreign liabilities as compared to early 2015, with such liabilities still declining fast.

Provided that the current BoR scenario assumptions remain in force (the average Urals of \$30 a barrel in 2016), the significant slump in the current year's positive surplus calls for a further sustainable contraction in capital outflows. This adds to the ruble's sensitivity to global financial market shocks and could strengthen inflation risks.

## **1.2. The structural shifts currently underway in the Russian economy helped cushion the slump but have so far failed to put it back on a growth path**

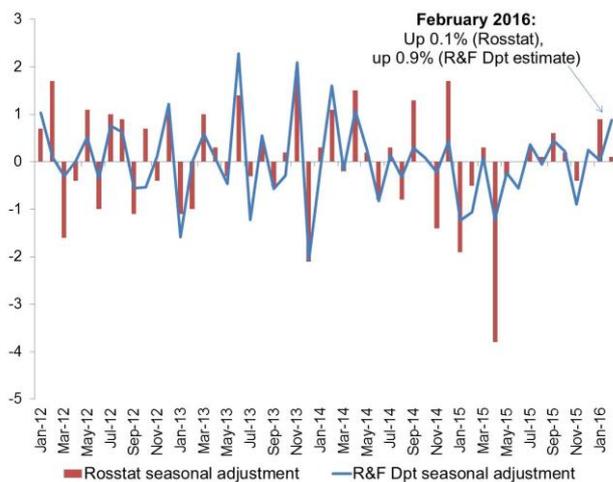
Production dynamics signal higher stability of the economy in the face of falling oil prices. The risks of a new spiral of recession have failed to materialise. Individual sectors and industries are showing structural shifts towards the tradables sector, together with a higher output. The overall monetary policy makes neutral effect on the current economic developments.

### ***1.2.1. Industrial production in February: the impact of the weather and calendar factors complicates current situation assessments***

- The February industrial output data have been positive, coming as a surprise to many analysts.
- Given the warm weather effect in February, R&F Department estimates for seasonally adjusted output, adjusted for the weather factor, came to be more optimistic compared to Rosstat's.
- The positive February performance notwithstanding, it looks like the economy has yet to overcome stagnation. The structural change, essential for sustainable industrial expansion to resume, is likely to take more time.

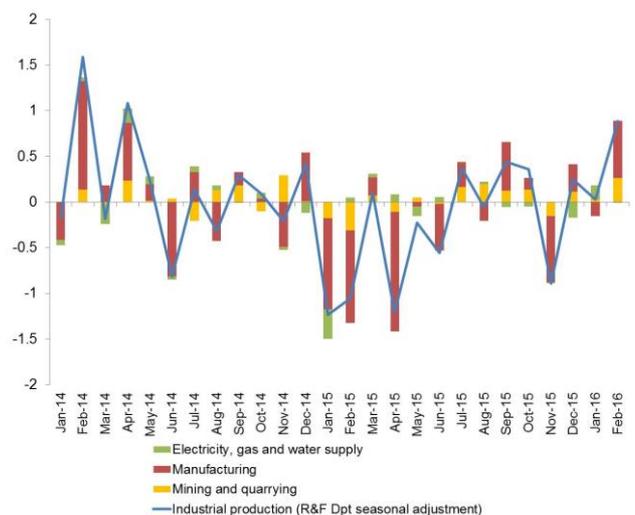
According to Rosstat, industrial output grew 0.1% MoM in February. R&F Department estimates are a lot more optimistic, evidencing output in manufacturing growing 1.1% MoM and in mining 0.7% MoM. Our developed estimate for increment in electricity, gas and water supply, adjusted for the temperature factor (in particular, the comparatively warm weather of last month) points to no material change to output in these economic activities, with a mere 0.1% decline in February. This factored in, we estimate the overall February industrial expansion to total 0.9% MoM, seasonally adjusted (Figure 18).

**Figure 18. Industrial production, % MoM (seasonally adjusted)**



Sources: Rosstat, R&F Department calculations

**Figure 19. Contribution of individual components to industrial output index, % MoM (seasonally adjusted)**



Sources: Rosstat, R&F Department calculations

As evidenced by the February statistics, the industry is beginning to feel a gradual recovery followed by the winter oil price slump. This may well result in monthly industrial output rates settling down in the nearest future at the level of October-November last year, when we found positive signs in short-term economic activity trends.

At the same time, electricity, gas and water supply (EGWS) is down 1.3% MoM, seasonally adjusted. According to our analysis, the underrated weather factor in the conditions of substantial air temperature deviations from the average could result in overestimated or underestimated industrial output in seasonal adjustment of the indicator.

With the above factored in, we implemented the correction of EGWS based on the regression model that retrospectively establishes the indicator's statistical correlation with temperature deviation (for details please see Box '*Seasonal adjustment of electricity, gas and water supply adjusted for the weather factor*'). The findings based on the methodology applied showed that estimates for increment in EGWS with less volatility are closer to the pattern of other economic activities, seasonally adjusted.

The calculated estimate is 0.8 pp higher than Rosstat's. Only 0.2–0.3 pp of the difference can be attributed to the adjustment for the warm February effect we made. The

remainder of 0.5-0.6 pp must be the difference in other seasonal adjustment criteria. Practice shows that, with short-term indicators being unstable, the resulting seasonal adjustment may well be sensitive enough not only to the seasonal adjustment methodology (e.g., TRAMO/SEATS, X12-ARIMA) but to the historical selection applied, the procedures for automatic model selection and quality assurance of seasonal adjustment outcomes, to the calendar effect removal approach, identification of outliers, etc.

While we are on the February, the leap year's positive effect should be noted in the context of industrial production and overall economic developments. With the number of work days in February this year unchanged as last year, the extra calendar day was supposed to make a positive effect on the economy. This should manifest itself through the consumption of products and services.

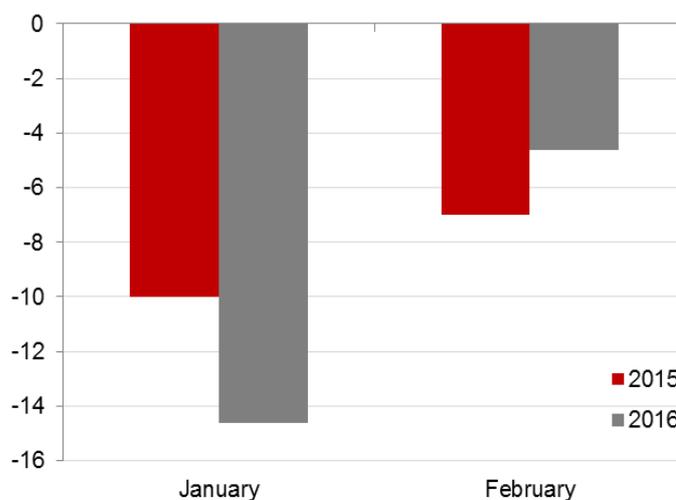
Regardless of the overall optimistic findings, we continue to treat the recently available statistics with caution, as long as the high volatility in monthly data remains, and in view of the substantial difference in seasonally adjusted growth increment estimates from Rosstat's.

#### Seasonal adjustment of electricity, gas and water supply adjusted for the weather factor

The expansion in the EGWS is due to the weather conditions, while control of this factor is essential as seasonally adjusted estimates for industrial output are made.

The air temperature readings (Figure 20) show January of 2016 was a much colder month to last year, and, vice versa, February of 2016 was a lot warmer than that of last year. Average monthly temperatures may deviate from climatological normals, especially in the winter time, and could be a strong influence with the output of heat. In February, the electricity, gas and water supply is most likely to adversely affect industrial output.

**Figure 20. Average monthly air temperature  
in Russia, °C**



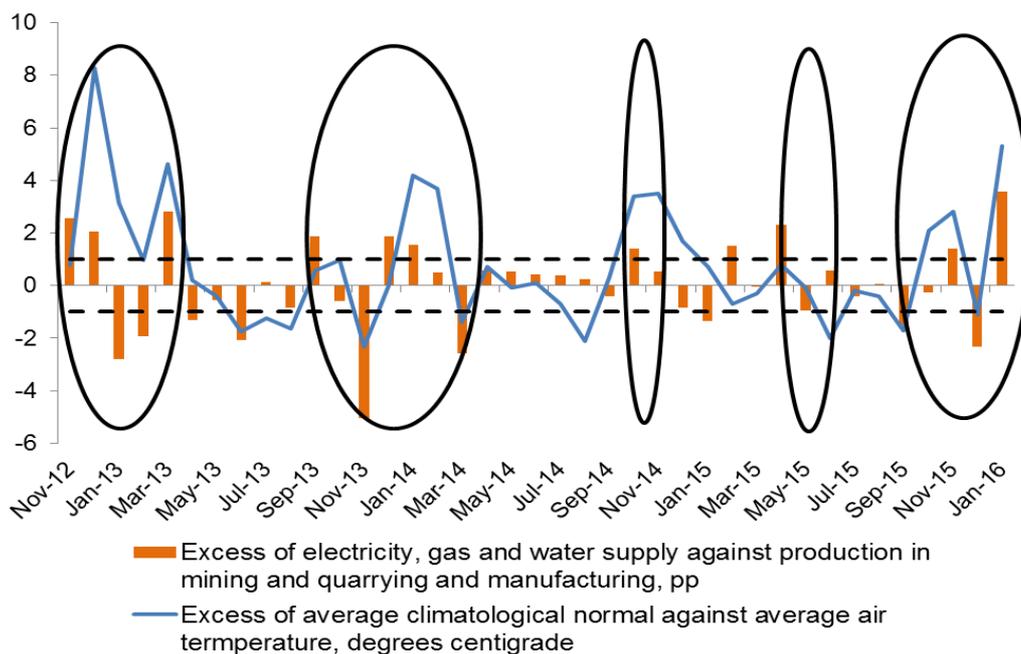
Source: UES System Operator

We carried out direct comparison of the deviated seasonally adjusted EGW production to the average output rates in mining and manufacturing, *on the one hand*, and the excess of climatic normal across Russia, *on the other*. We were especially focused on the instances where seasonally adjusted deviations in EGWS were substantial and in excess of 1 pp, most probably as a result of the undervalued weather factor from the standpoint of seasonal adjustment.

According to the available estimates for the last three years, in the months of rather cold weather (that is, when the deviation from climatic normal was considerable), gains in EGWS in most cases exceeded those in other economic activities at least 1–2 pp (Figure 21). In the periods when air temperature was significantly higher than a climatic normal, EGWS tends to decrease, as a rule, by more than 1 pp as compared with other industrial production components.

This consideration factored in, it is quite possible to expect that the application of standard procedures to seasonally adjust the February data on industrial production will substantially downgrade industrial output estimates. The problem of a workable temperature effect removal treatment is therefore becoming very relevant considering the need to track turnaround trends in economic activities, taking into account the volatility of short-term statistics and the effects of abnormal weather observed.

**Figure 21. Air temperature deviation from the average climatological normal and gains in electricity, gas and water supply (adjusted for overall industrial production dynamics)**



Sources: Rosstat, UES System Operator, R&F Department seasonal adjustment

For the purposes of seasonal adjustment in EGWS, we constructed a linear regression model with the following specifications:

$$Y_t = \alpha_1 x_{1t} \delta + \beta Z_t + \varepsilon_t, \quad \text{where}$$

**Y** – the excess of seasonally adjusted gains in EGWS (unadjusted for the weather factor)

against production gains in other economic activities (mining and manufacturing);

$x_1$  – the excess over the average climatological normal air temperature (centigrade, according to UES Central Dispatch Office (CDO));

$Z$  – other explanatory factors matrix;

$\delta$  – dummy-variable, equal to **one** for the winter season (November through March inclusive), and **zero** in the rest of the months;

$\alpha_1, \beta$  – unknown estimated parameter vectors;

$\varepsilon$  – random error.

The above-mentioned regression model enabled us to extend this conclusion to all previous time periods, so we can test the hypothesis that there is a statistically significant interrelation between air temperature deviations and electricity, gas and water supply pattern.

The dummy variable  $\delta$  included into the model enabled us to separate conditionally winter months when power generation is allegedly more sensitive to weather anomalies (these comprised *November, December, January, February and March*), as distinct from the rest of the months, and to estimate the regression equation, taking into account, inter alia, these observations only.

Equation parametrisation through the usual of the least-squares method yielded the estimate of the key coefficient  $\alpha_1 = -0,42$ , which was statistically significant with a 95-percent level of trust. This elasticity also has the 'correct' sign, that is, the *warmer (colder)* the winter period is against the climatologic normal, the more *upgrade / downgrade* in production (electricity, gas and water) is shown by the traditional seasonal adjustment without correction for temperature. Plus, if model parametrisation is conducted for the other warmer months, the corresponding estimate, to support our original hypothesis, is substantially lower -  $\alpha_1 = -0,10$ , and yet it happens to be negative and statistically significant.

Taking into account the resulting estimates the corrected seasonally adjusted assessment of EGWS increment ( $Q_{\text{ckopp.}}^{\text{ЭГБ}}$ ) was thereafter calculated without correction for the weather factor  $Q^{\text{ЭГБ}}$  and the air temperature deviation ( $x_1$ ) according to formulas:

$$Q_{\text{ckopp.}}^{\text{ЭГБ}} = Q^{\text{ЭГБ}} + 0,42 \times x_1 - \text{for the period between November and March inclusive};$$

$$Q_{\text{ckopp.}}^{\text{ЭГБ}} = Q^{\text{ЭГБ}} + 0,10 \times x_1 - \text{for the period between April and October inclusive};$$

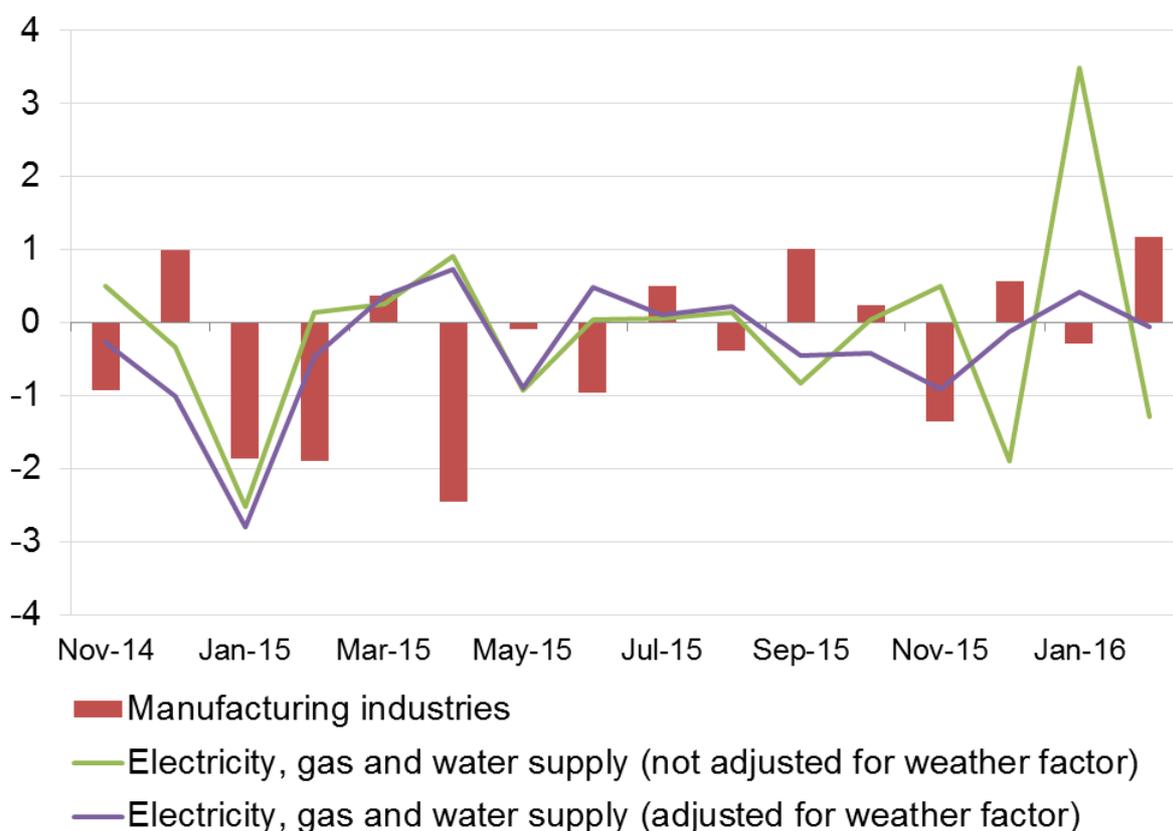
Seasonally adjusted increments were therefore corrected for the amount of their 'temperature-determined' fluctuations versus output in other economic activities.

The important conclusion following from the analysis we carried out is that seasonal adjustment in EGWS with recognition of the weather factor not only eliminates alleged excessive and low informative volatility from the row dynamics. The dynamics in the modified row become much closer to output fluctuations in manufacturing, which is, in terms of gross value added (GVA), is the most powerful component in industrial production (Figure 22), that is, it becomes more correlated with the general state of affairs in manufacturing. Over the last year and a half, it is most clearly seen in the winter pe-

riod where our approach-determined adjustment was the biggest.

It is necessary to emphasise that in individual periods the gaps between manufacturing output performance and EGWS can be well founded and not unrelated to the flaws of seasonal adjustment. The latter could be explained, for instance, by the fact that production enterprises may spend electricity as auxiliary power.

**Figure 22. Manufacturing and EGWS with the weather factored in /excluding, % MoM (seasonally adjusted)**



Sources: Rosstat, R&F Department seasonal adjustment

It is also necessary to point out that our treatment of weather factor elimination is implemented in a first approximation and excludes temperature measurements on work days/weekends, day/night hours, the relevant regional level data, etc. Nevertheless, the limitations of our findings are not detrimental to the relevance of industrial production adjustments based on the weather factor.

### **1.2.2. Structural shifts in manufacturing are tilted towards intermediate demand industries**

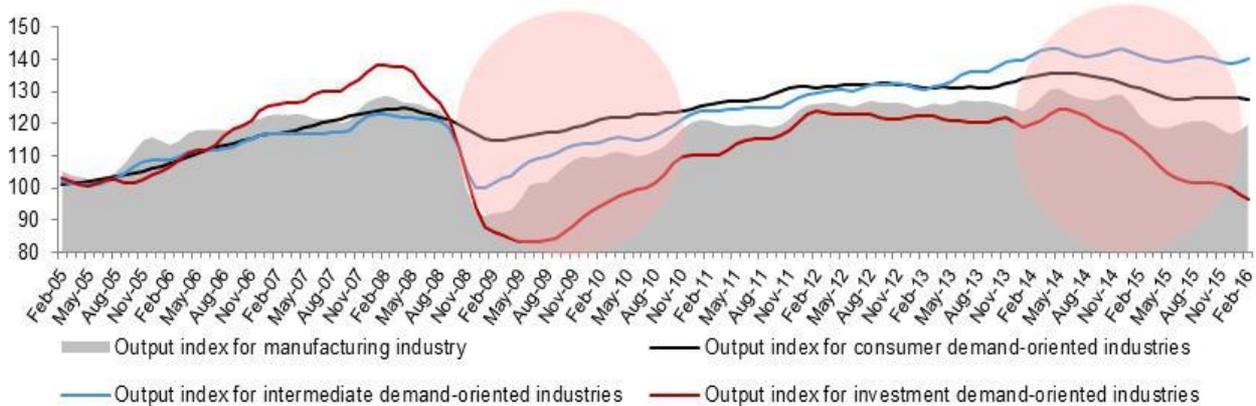
- In February 2016, the production index in the industries of investment and consumer demand was continuing to fall, while the industries of intermediate demand

saw a strengthening in the trend towards growth, reflecting the current structural shifts.

- As compared to the 2008-2009 recession, the current changes to the output structure are less intensive but are advancing progressively, being primarily of a structural, not cyclical, nature.

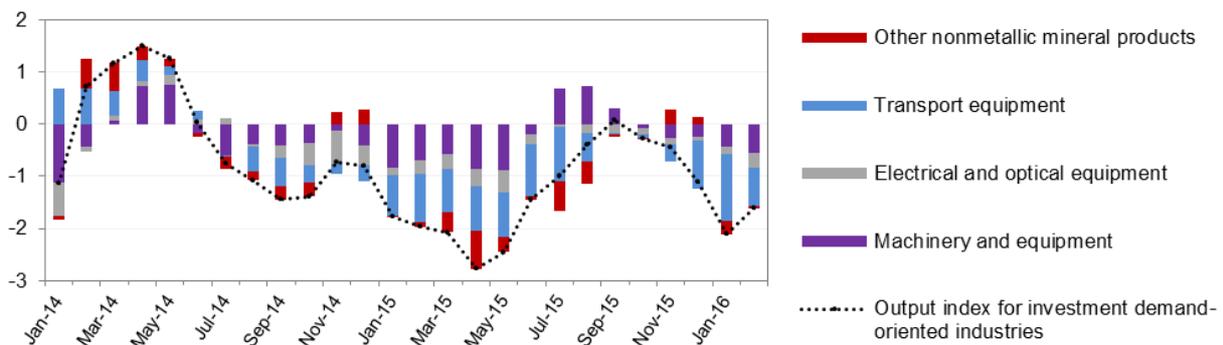
In the face of the current industrial recession, investment demand-oriented manufacturing industries (mechanical engineering, construction materials) posted the deepest drop (Figure 23). In February 2016, the pressure from low investment activity in the economy caused the downward trend to remain in place (Figure 24). However, for the first time over the last six months, the contraction was starting to slow, driven by improvements in the production of vehicles / equipment and non-metallic mineral products. The latter is caused by the growth in construction since late last year.

**Figure 23.**  
Trend component in manufacturing and in industry clusters, December 2004 = 100%



Sources: Rosstat, R&F Department calculations

**Figure 24.**  
Output index for investment demand-oriented manufacturing industries\* (trend), % MoM



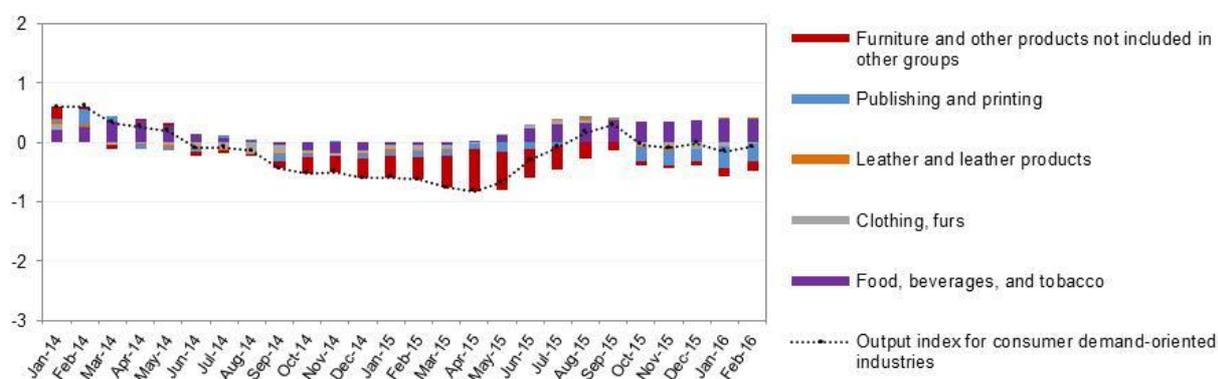
Sources: Rosstat, R&F Department calculations

The industrial output index in the industries of consumer demand in the current crisis posted a less deep recession than seen in 2008-2009 (Figure 23), supported by the positive developments in the food industry. In February 2016, the production of food products also helped generate a positive index, but the growth was occurring on the back

of the depleting residual potential of import substitution. Other industries within this cluster, focused on durable consumer goods (furniture, clothes, printed material), continued to drop. The period between January and February 2016 saw a hardly noticeable turnaround only in leather manufacture and footwear production (Figure 25).

The steadiest dynamics in the course of 2015 were seen in the cluster of intermediate demand industries, which are traditionally oriented towards foreign markets (Figure 23). Since January of the current year, production in the segment of intermediate goods shows a trend towards growth (Figure 26). The potential impact of drivers helping preserve strong growth for the long term remains very limited. With the lack of prerequisites for any substantial increase in the volumes of physical exports, the positive impetus from linked industries on the backdrop of dropping consumer and investment demand has yet to be created.

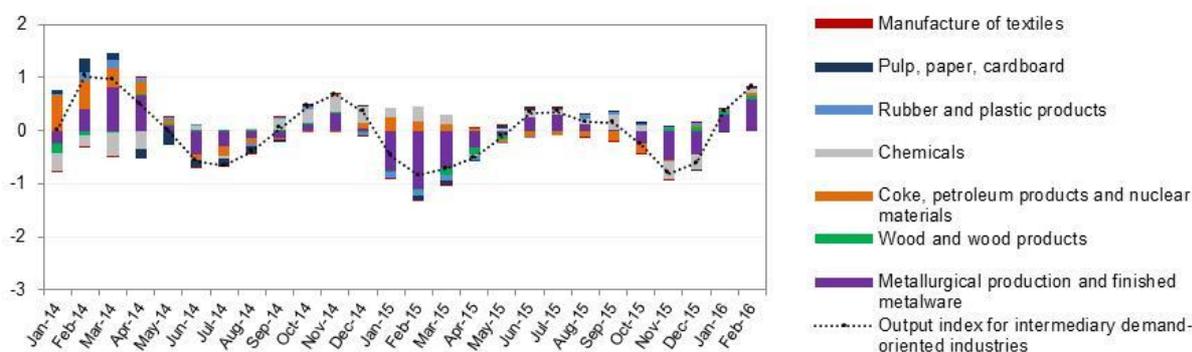
**Figure 25. Output index for consumer demand-oriented manufacturing industries (trend)\*, % MoM**



\* Taking into account the January-February 2016 data, the dynamics of the trend component in the output of vehicles and equipment were reviewed. For the avoidance of false presentation of production upswings in the future, TRAMO/SEATS settings for seasonal adjustment were changed.

Sources: Rosstat, R&F Department calculations

**Figure 26. Output index for intermediate demand-oriented manufacturing industries (trend)\*, % MoM**

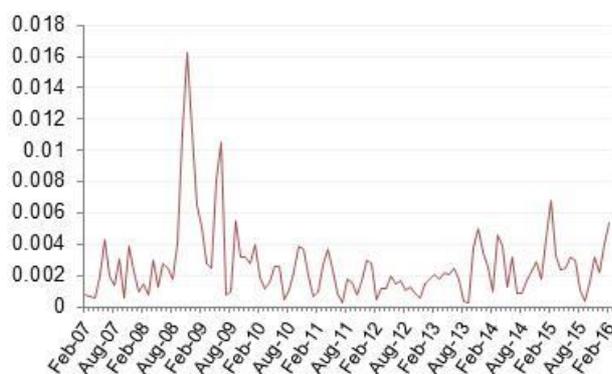


Sources: Rosstat, R&F Department calculations

The softer dynamics of intermediate demand-oriented industries with the relatively deeper fall in the industries of consumer and investment demand are shaping the ongoing

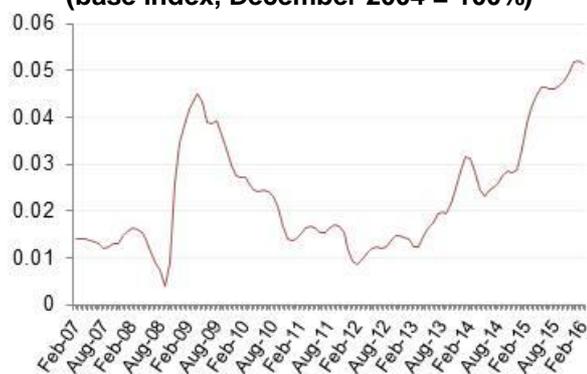
ing structural shifts in manufacturing. This direction of structural shifts is understood to be quite natural for the economy focused on export of raw materials and low added value products.

**Figure 27. Structural shift intensity index in manufacturing industry clusters<sup>24</sup>**



Sources: Rosstat, R&F Department calculations

**Figure 28. Structural shift advance index in manufacturing industry clusters (base index, December 2004 = 100%)<sup>25</sup>**



Source: Rosstat, R&F Department calculations

Our calculated indices show the intensity and advance of structural shifts<sup>26</sup>, suggesting that, in comparison with the 2008-2009 recession, the current changes in the output structure are less intensive but are advancing progressively, i.e. a certain trend is distinct in their development.

Intensified structural change is evidenced by the structural shift intensity index, which reflects the speed of such change across industry clusters (Figure 27). The greater value of this indicator is, the quicker change in the output structure is. The magnitude of

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$$I_{\text{интенсивности}} = \frac{\sum_{j=1}^3 w_j |I_j - I|}{I}$$
, where  $w_j, j = \overline{1,3}$  is the share of the industry cluster (investment, consumer

and intermediate demand) in manufacturing GVA ( $\sum_{j=1}^3 w_j = 1$ );  $I_j, j = \overline{1,3}$  is a chain index of the trend component of physical production volume in the industry cluster (investment, consumer and intermediate demand);  $I$  is a chain index of the trend component of physical volume of output in manufacturing.

$$I_{\text{поступательности}} = \frac{\sum_{j=1}^3 w_j |I_j - I|}{I}$$
 where  $w_j, j = \overline{1,3}$  is the share of the industry cluster (investment, consumer

and intermediate demand) in manufacturing GVA ( $\sum_{j=1}^3 w_j = 1$ );  $I_j, j = \overline{1,3}$  is a base index of the trend component of physical production volumes in the industry cluster (investment, consumer and intermediate demand);  $I$  is a base index of the trend component of physical volume of output in manufacturing.

<sup>26</sup> The calculation methodology for intensity / advance of structural shifts indices is detailed in the following publication: Bessonov V.A. Problems of Analysing Russian Macroeconomic Dynamics of the Transition Period. Moscow, IET, 2005.

index variation came up against 2014, albeit to a less extent compared to the 2008-2009 crisis. This suggests a slower materialisation of structural change in the current economic slump. Less intensive though these shifts may be, they are not the outcome of sporadic output fluctuations and are advancing progressively. This is supported by the advance of structural shifts indicator, with an upward trend since 2013. In 2008-2009, the structural shift advance index underwent strong yet short-term fluctuations of irregular nature, driven by the cyclical, rather than structural, nature of the change at the time (Figure 28).

The intensity and advance of structural shift indices are inconclusive as to how qualitative the nature of change is in manufacturing and if this change comes with a growing share of high value added products. As mentioned above, since early 2014 we have been seeing that the drop in the production of consumer and investment demand products, that is, higher value added products, has been outpacing that in intermediate demand products. And this indirectly points to worsened quality of the industrial output in manufacturing.

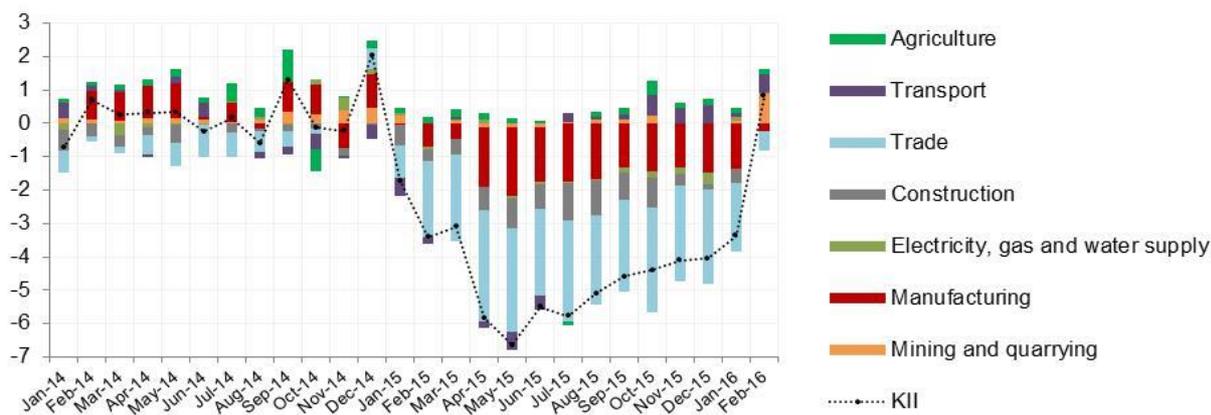
### ***1.2.3. The rising output in key industries in February should not be overinterpreted***

- Although the output in the key industries in February did grow, it would be premature to envisage the start of recovery growth.
- The regional key industry index shows better economic performance on last year in almost all federal districts, in many ways thanks to the leap year effect and the low base of February of the past year.

February 2016 was the first month the key industries posted annualised growth, for the first time in 14 months. The February key industry index (KII)<sup>27</sup> was 0.8%, with a 4.2 pp monthly rise (Figure 29). The rise in KII was helped by the low base of February 2015, as well as by the growth, on the previous month, of all KII components save retail turnover. The resulting seasonally adjusted output in the key industries rose 0.6% in February on January. Considering the unstable pattern of output in the key industries in recent months, the probably underestimated influence of the leap year factor, as well as the continued uncertainty impacting on the economy situation as one of major output constraints in the key industries, it would be premature to discuss the onset of recovery growth.

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<sup>27</sup> KII is calculated as the aggregate of five industry indicators on a year-on-year basis (agricultural output; industrial output, volume of construction; volume of wholesale and retail sales, cargo turnover) with the weights corresponding to the industry's share in gross value added in the region in 2013.

**Figure 29. Industrial components' contribution to KII behaviour in Russia in 2014-2016, % YoY**

Sources: Rosstat, R&F Department calculations

The regional key industry index (RKII)<sup>28</sup> in February shows better performance across all federal districts (save the Far-Eastern Federal District), in contrast to late 2015 when the index deteriorated in most regions (Figure 30). Annualised rates of decline slowed down in the Central, Southern, Volga and Siberian Districts. Three federal districts (North-Western, North Caucasian and Urals) posted accelerated economic activity. The Far- Eastern Federal District was the only posting again a resumed slump in business activity.

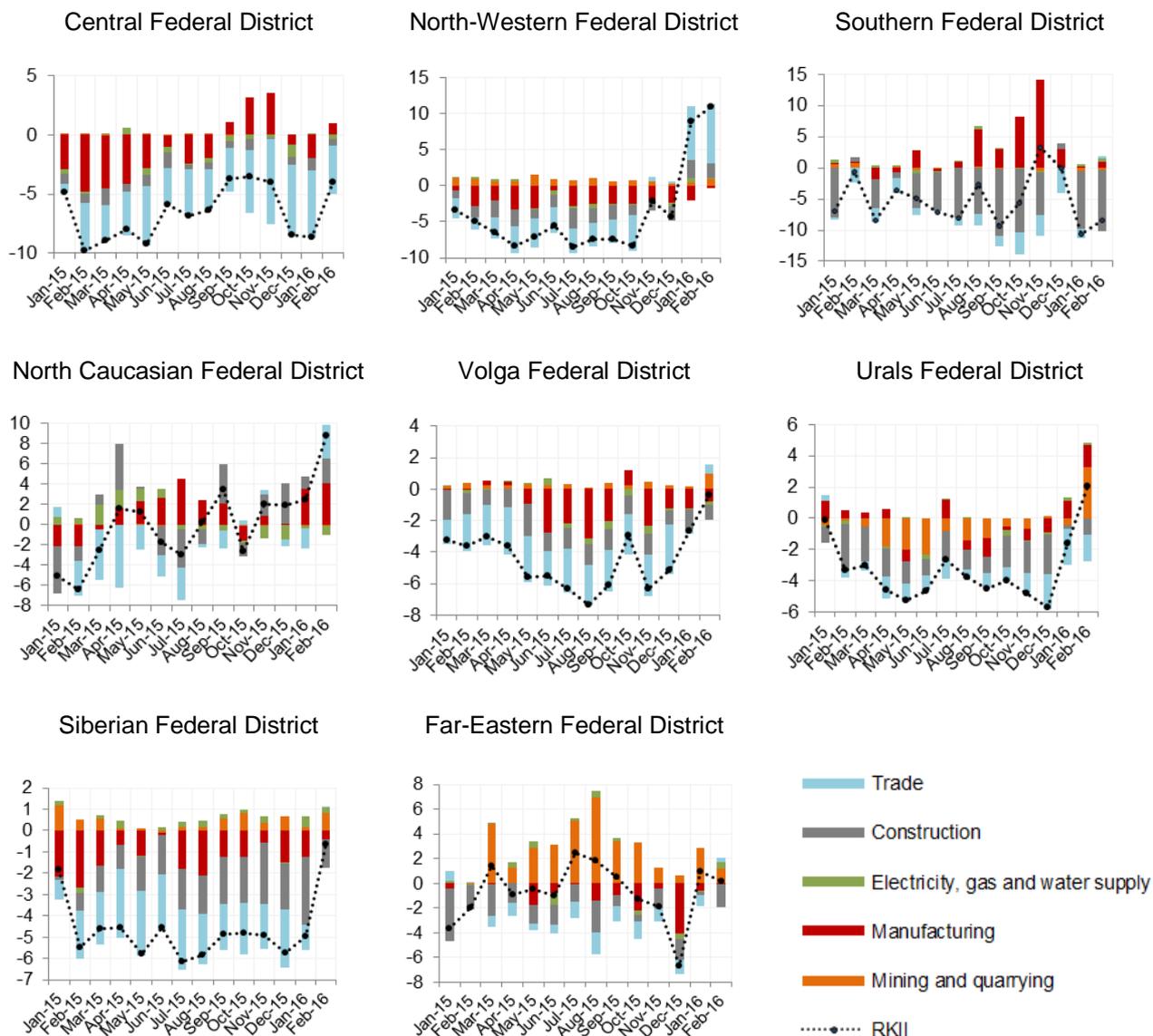
The nature of the drivers with positive impact on the RKII in individual regions varies across the regions, determined by the industrial profile of the territory.

Across all regions with advanced mining and extraction operations (except the Far-Eastern Federal District), added production volumes in February on January were responsible for the positive contribution to regional indices. In the Urals Federal District, mining became a major growth driver.

Thanks to the low base of last year and the trade industry's contribution, RKII in February was positive in all federal districts, except for the Urals and Central Districts. The latter, as the financial and economic centre, was buffeted by the slump in demand, bringing about the strongly negative pressure of the trade industry on the index throughout 2015. At the same time, the trade industry in the North-Western Federal District in recent months has been a major economic growth driver. The trade sector traditionally makes a powerful contribution to regional gross products of a number of regions in the federal district.

<sup>28</sup> The regional key industry index (RKII) has been developed for the purpose of prompt monitoring of the economic situation in different regions. As there is no official information on agricultural output and cargo turnover broken down by federal district, the RKII is estimated using three industry indicators: industrial output, construction, and wholesale and retail turnover.

**Figure 30. Industrial components' contribution to RKII growth in 2015-2016, % YoY**



Sources: Rosstat, R&F Department calculations

February's output in manufacturing grew against January only in the North Caucasian and Urals Federal Districts. In the latter, increased production volumes are accompanied with the advancement of processing sectors which are linked to the oil industry: coke, petroleum products, and chemicals. In North Caucasus, the positive growth rates in manufacturing are driven by the launch of the new gas-processing plant in the Stavropol Territory, as well as by expanding production of vehicles and equipment in the Republic of Daghestan (possibly, in the context of the defense order).

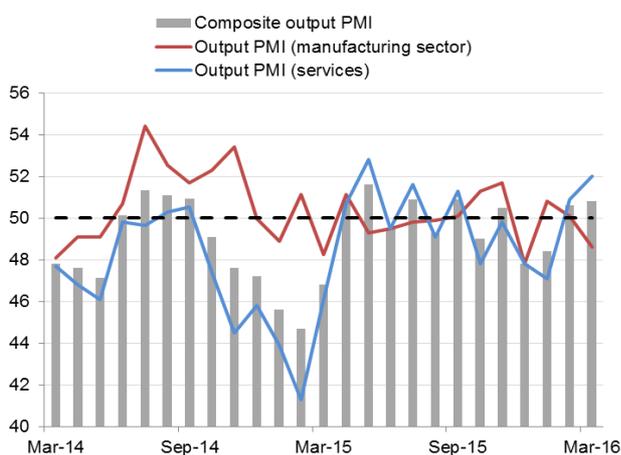
### 1.2.4. March PMI survey, production: growth is on hold

- The notable decrease in employment, output and new orders indices (PMI) leads to conclude that the industrial dynamics of early Q2 macroeconomic indicators might come in weak.

PMI in manufacturing industries in Russia in March was substantially worse than expectations. The stabilisation of the index close to the border zone (50 points), observed for the last few months, was followed by the drop to a minimum seen since July 2015 to 48.3 points. Strong deterioration was seen in the employment component decreasing to 45.6 points, a minimum since January 2015 and can be indicative of intensified lay-off processes.

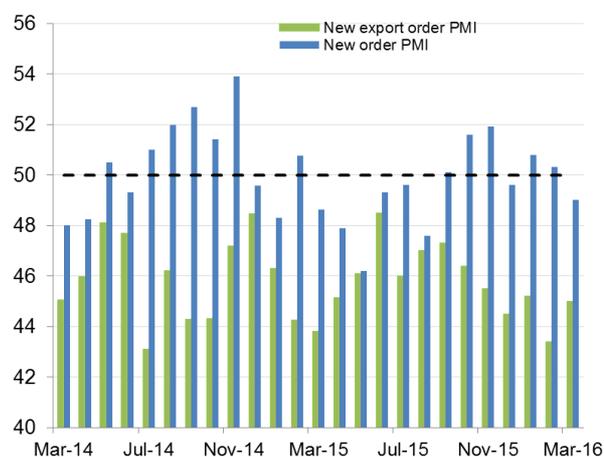
The PMI index for output in March descended from February and posted negative growth. This confirms our conclusion that the February rebound in the industrial sector could be temporary (Figure 31). The dynamics of new orders give reason to expect that the March recession of output is likely to be protracted. The number of new orders dropped to a low unseen since August 2015 (Figure 32). The slightly recovered export orders indicator against the decrease in total new orders could mean a downturn in new internal orders, and strong enough, which only recently were posting positive figures.

Figure 31. Russian PMI indices - output, points



Sources: Bank of Russia, Bloomberg Finance L.P., R&F Department calculations

Figure 32. Russian PMI indices - new orders in manufacturing, points



Sources: Bank of Russia, Bloomberg Finance L.P.

The notable decrease in PMI employment, output and new orders indices leads to conclude that the industrial dynamics of early Q2 macroeconomic indicators might come in weak. The outlook for overall industrial growth recovery is dim, despite the sporadic growth signs usually associated with improvements in separate sectors.

Importantly, the February and March PMI indices may to a degree misrepresent the real picture. Seasonally adjusted PMI indicators may underrate the leap-year effect. This may well result in the February PMI readings to be overestimated, and March – underestimated. In this context, the April data can provide more insight into the current state of indicators.

### **1.2.5. Unemployment remains stable**

- In the face of stable unemployment indicators, labour resources are slowly overflowing from the non-tradables sector (construction, finance) to tradables (production, chemistry, etc.).
- Low labour mobility, coupled with Russian demographic specifics, and growing informal employment may well slow down the economic transition to a new balance and prolong the stagnation period.

According to Rosstat, February's unemployment remained level with January at 5.84% (Figure 33). Unemployment (unadjusted for the seasonal factor) decreased from 5.6% in January to 5.5% in February. For the fourth month in a row (since November 2015), the number of unemployed remains on the order of 4.4 million people, which is 0.4 million higher than the minimum value seen in June 2015. Since the beginning of 2016, the intensive lay-off processes have been slowing down.

In addition to Rosstat-calculated unemployment rate, we calculated broader U5 and U6<sup>29</sup> unemployment rates (Figure 34). At the end of 2015, U5 was growing. It occurred on the back of withdrawal of part of the population from estimated workforce<sup>30</sup>. Amid economic uncertainty and economic downturn, businesses were forced to reduce manpower resources, showing, at the end of 2015, weaker demand for labour.

U6 is also growing, albeit slower than U5. Businesses are still attempting to escape large-scale staff reductions as they switch, if necessary, to the partial employment mode (less than 30 hours) for some of their staff. This argument is further supported by Rosstat data showing the growth of working population looking for a side job.

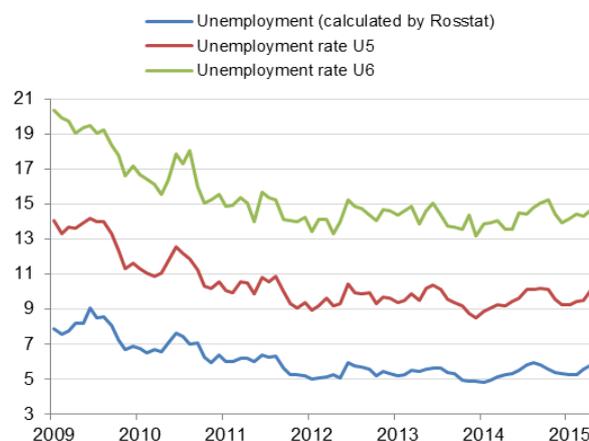
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<sup>29</sup> This classification is applied for calculation of various Bureau of Labor Statistics of indicators (US Bureau of Labor Statistics). Their calculation is based on quarterly statistical data. The U5 indicator, beyond the registered number of unemployed, includes economically inactive population, that is, people who are not looking for a job or who lost hope to find it but are still willing to work. The U6 indicator includes U5 and those occupied part-time (less than 30 hours a week).

<sup>30</sup> Some part of the population stops looking for a job and is technically excluded from workforce.

**Figure 33. Unemployment rate\*, %**

Sources: Rosstat, R&F Department calculations

**Figure 34. Unemployment rate, including part-time employment and willingness to work, %**

Sources: Rosstat, R&F Department calculations

In January 2016, the total number of occupied jobs fell 3% YoY. The number of jobs for the period under review is continuing to drop across all types of economic activity, with very few exceptions. The deepest slump is posted by the financial sector and construction, 11% and 10% respectively. The trade industry, manufacturing, the public sector and energy generation and distribution posted a slightly less than 4% drop. Positive dynamics are posted by the hotel and restaurant business with their 3.0% YoY growth, as well as by some manufacturing subsectors (petroleum products with its 3.2% growth, chemicals – 0.3%) and the extraction of fossil fuels subsector – 1.5%.

Overall, these dynamics are indicative of the ongoing labour force overflow from the non-tradables sector (construction, finance) to tradables (mining and field production, chemicals etc.) expected to materialise in the context of the change in foreign trade and in relative prices. Yet, the scale of this change is too minor as compared to the developments from the viewpoint of structural economic transformation. Low labour mobility, coupled with Russian demographic specifics, and growing informal employment, may well slow down the economic transition to a new balance.

### **1.2.6. Russian producers remain competitive over their Chinese counterparts on the back of a stronger yuan**

- Growth of nominal salaries within the last two years slightly outpaces China's GDP growth. And, the growth of salaries in Russia in the current crisis remain high taking into account the current performance ...
- ... which enables China to boost, since the middle of 2014, the competitiveness of its industry in terms of unit labour costs against Russia ...

- however, the lost competitiveness of the Russian industry against China in terms of salary growth was completely set off by the recent strengthening of nominal yuan versus the ruble.

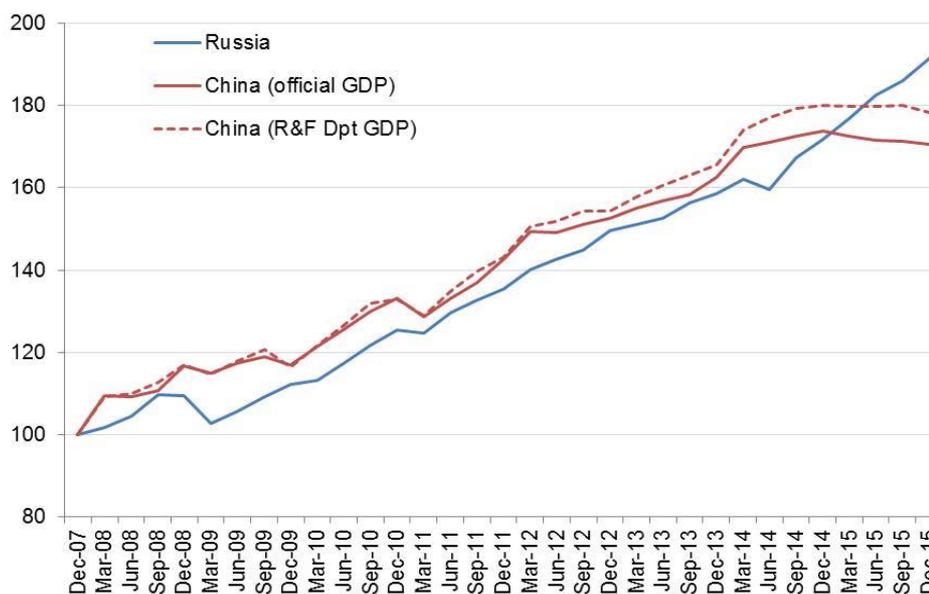
We compared the Russian and Chinese industries competitiveness in terms of unit labour costs (further – ULC, from the English term). According to the commonly accepted method for calculation of this indicator for various countries, officially in use by the Organisation for Economic Cooperation and Development (OECD) and Eurostat, it is defined as the ratio of the nominal wages fund (that is, the product of an average nominal salary times the total employees) to the real output.

Taking into account the commodity structure of Chinese exports, it would be reasonable to carry out production competitiveness analysis to that of trading partners operating the corresponding indicators (the average nominal salary, the number of employed and output) only in relation to the processing sector.

We concluded this benchmark analysis premised on the restrictions of the available data, first of all on China, looking into ULC quarterly performance for 2008-2015.

Figure 35 shows that the competitiveness of Russian products in terms of ULC was growing versus China at the beginning of 2009 and in the middle of 2014 as the labour market was adjusting to the crisis in the economy. However, these intervals were rather an exception to the general rule. The trend towards rising salaries was clear in China until recently, offsetting China's competitive advantages of cheap labour.

This comes as a result of a series of objective factors. *First*, this is gradual depletion of the catching-up economic growth model, which has for long set GDP and, respectively, salaries, to grow faster than in more developed economies. *Secondly*, it is explained by tightened competition in the industrial areas in the face of China-pursued demographic policies. The current situation shows that the long-term salary expansion trend seen until recently is one of the key constraining factors for the Chinese economy.

**Figure 35. ULC in Russia and China (2007 Q4 = 100)**

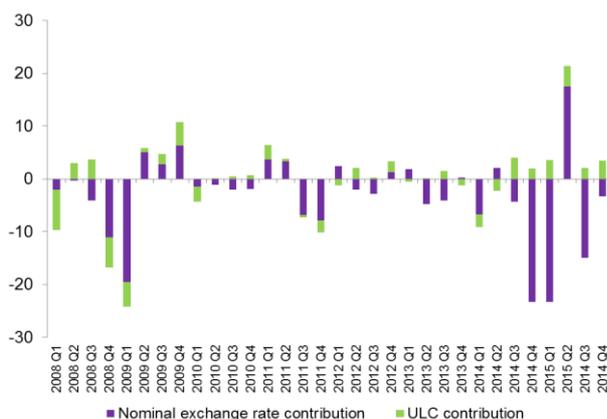
Sources: CEIC, Bloomberg Finance L.P., National Bureau of Statistics of China, Capital Economics, Rosstat, R&F Department calculations and seasonal adjustment

As regards the two recent years, China ULC has been steady since the first half of 2014, in contrast to Russian ULC, which was all the while rising. We could cite rising nominal wages despite the recession. Since mid-2014, as incipient GDP contraction was clear, the competitiveness gap between Russia and China which dates back to 2008 was gradually decreasing, all the while increasing China's competitiveness again. Viewed versus 2007 Q4, the Russian industrial sector has been losing to China in terms of ULC competitiveness since early 2015.

We also based our ULC calculations on alternative assessments of China GDP – China Activity Proxy Capital Economics (Figure 35). These estimates are, in our view, better reflective of the real ratio of Russia to China industry competitiveness, including the impact of Chinese economic restructuring and decreasing industrial contribution to China GDP growth. Although these downgrade the relative competitiveness of China by ULC, they keep the general conclusion unchanged: since mid-2014, Chinese competitiveness has been on the rise, in terms of ULC, against that of Russia.

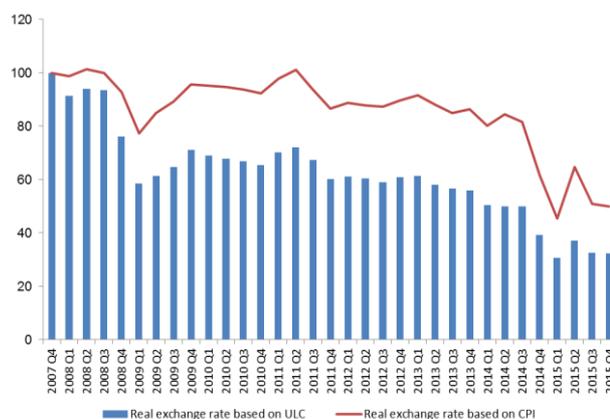
As we looked into the issue further, it was found that the growth in China competitiveness as above dating back to 2014 was practically set off by the yuan's strengthening to the ruble on the back of ruble devaluation caused by the sanctions and the drop in crude prices, as well as the Chinese policy-makers' efforts to support the national currency through sale of forex reserves. Our estimates show that the real ruble to yuan exchange rate in recent years, even in fairly still quiet periods of minimum external shocks, was dependent on the real exchange rate by approximately 70% and only by 30% on the ULC differential (Figure 36).

**Figure 36. Real ruble / yuan exchange rate: contributions of nominal exchange rate and ULC differential, Russia versus China, % QoQ**



Sources: CEIC, Bloomberg Finance L.P., National Bureau of Statistics of China, Capital Economics, Rosstat, R&F Department calculations and seasonal adjustment

**Figure 37. Real effective ruble / yuan exchange rate calculated in terms of CPI and ULC (2007 Q4 = 100)**



Sources: CEIC, Bloomberg Finance L.P., National Bureau of Statistics of China, Capital Economics, Rosstat, R&F Department calculations and seasonal adjustment

Furthermore, the real ruble exchange rate value as calculated based on the inflation differential (which is published on the BoR website versus the US dollar, euro and the key national trading partners' currencies) may well provide a rather misplaced presentation of Russia to China competitiveness in foreign trade. This stems from the fact that consumer inflation it is based on is calculated for both tradables and non-tradables.

The real ruble exchange rate so calculated will fail to show, for example, significant fluctuations in the periods of outrunning wages growth in China, while also giving the wrong message on the real strengthening during the periods of short-term surges in inflation without rising wages in the industry (Figure 37). In its turn, the real ruble to yuan exchange rate as calculated through the ULC differential shows a clear trend to the weakening of the Russian currency against China in real terms since 2011, the sign that Russian industrial competitiveness holds. This conclusion is important from the standpoint of a further advancing of trade and economic relations between the two countries.

### 1.3. Global economy, financial and commodity markets

#### 1.3.1. The soft stance of major central banks helps check global economic slowdown risks

- The US Fed softens its stance and projected rate rise trajectory, despite improved labour market and the signs of accelerated inflation.
- The ECB makes steps to ease its monetary policy but their efficiency remains questioned, especially in the context of a changed Fed standpoint.

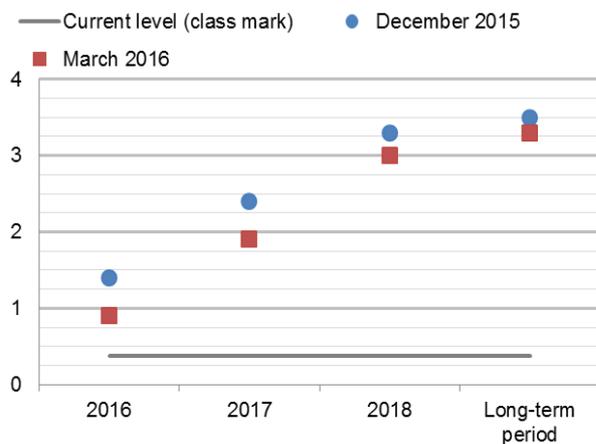
- China returns to the time-tested economic support methods as it is reducing short-term and increasing long-term risks.

### **USA: the Fed softens its standing in the face of high risks to the global economy**

The labour market is continuing to improve. The economy still added more than 200,000 jobs in its non-agricultural sectors. This saw unemployment in March growing from 4.9% to 5.0% as job-seekers reentered the job market, in a positive development. Labour force participation rate<sup>31</sup> rose to 63%, a two-year high. As expected, the Fed Federal Open Market Committee meeting of 16-17 March kept the rate unchanged at 0.25–0.5%. The financial market rebound following the slump at the start of the year, core inflation accelerated to the highest value for the period since 2012 (Figure 39), and the favourable labour market combined to make the case for expectations of tough Fed rhetoric on its monetary policy direction. To counter these expectations, the Fed's statement was soft enough and the key rate projection was substantially downgraded.

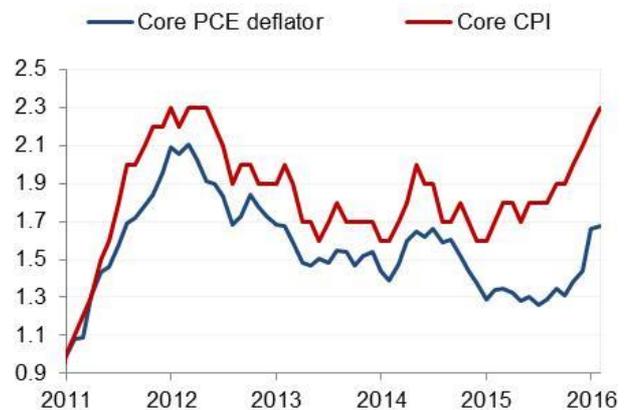
Both median forecasts for the next three years and longer-term rate projections were down on December (Figure 38). The Fed now envisages to increase the rate only twice in the course of the year, in contrast to the fourfold rise according to the plan unleashed only three months ago. And, according to consensus market expectations<sup>32</sup>, only one rate rise until the end of the current year is due.

**Figure 38. Median forecast for the Fed's key rate, %**



Source: Fed

**Figure 39. US inflation, % YoY**



Source: Bloomberg Finance L.P.

Notwithstanding the economic improvement and price acceleration, the Fed cites rather strong financial market and global economic risks. The slowdown in China topped the agenda as a major risk to the global economy back in the start of the year.

<sup>31</sup> Labour force participation rate in the total number of economically active population.

<sup>32</sup> Based on the futures for the federal funds' rate.

### ***Eurozone: the ECB stands ready to pay banks for expansion of lending to the economy***

On 10 March, the ECB action caught markets off guard by easing monetary policy more than expected. In addition to the expected cut in its deposit rate to -0.4%, the ECB reduced by a symbolic 5 bps its other key rates: the refinancing rate to 0% from 0.05% and the lending rate to 0.25% from 0.3%. The monthly asset purchase programme was extended from €60 billion to €80 billion, with the pool of assets to be purchased expanded by euro-denominated non-bank investment-grade bonds. Additionally, the ECB is set to provide four tranches under its TLTRO (TLTRO II) programme for four years. The latter step came unexpected considering that under certain conditions banks can obtain these at the rate equal to the deposit rate. In the follow-up press conference Mario Draghi did not rule out that the regulator rates may have hit their bottom.

These steps suggest the ECB is overly concerned with the secondary effects of close to zero inflation and the overall slowdown in the eurozone, which found its way in its forecasts. These envisage for 2016 inflation to total a mere 0.1% and 1.8% for 2018, still below the 2% target. The ECB expects the economic growth in the euro area to slow in 2016 to 1.4% and gradually accelerate to 1.8% in 2018.

The latest ECB move has created prerequisites for a further reduction in the already record low lending cost in the eurozone. Although meant to back economic growth, the overall impact of these steps remains to be seen.

### ***China: short-term slowdown risks are descending, while long-term ones are growing***

The People's Bank of China has carried on with monetary easing, following a short pause, that it has been conducting since last year. Required reserve ratio for major banks was reduced by 50 bps (from 17%). The PBC press release says that this step is meant to sustain the expansion of lending. And, this provides conclusive evidence to the fact that support of economic growth is the number one priority of Chinese policy makers. A surge in lending was recorded earlier in January, which is most probably set to continue in the months to come, as a result of monetary policy easing.

The rising potential pressure on the national currency was seen as a constraint for the People's Bank of China as it was contemplating the loosening of its monetary policy in the recent months. And, regardless, the required reserve ratio was reduced. This may well suggest the PBC detects the onset of contraction in capital outflows or is still willing to resort to foreign exchange interventions, drawing on its forex reserves.

With forex reserves contracting slower and trade surpluses dropping, capital outflows for February could well be estimated at a mere \$20-30 billion versus \$113 billion<sup>33</sup> seen in January. Most likely, the recent public statements by several PBC executives,

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<sup>33</sup> The Institute of International Finance estimate.

with their assurances that there were no risks to a strong yuan weakening, helped diminish the pressure on the national currency.

The Bank for International Settlements (BIS) in its quarterly report published China capital outflow structure for the second half of 2015. According to the report, stronger capital outflows are not caused by large-scale sale of Chinese assets and withdrawals but by the drop in Chinese companies' offshore debt.

New lending in February was back to the average of the second half of the year, as was expected following their record readings in January. This however leaves the February data unrepresentative because of seasonal activity drop related to New Year holidays. March may post some lending expansion, driven by the PBC-reduced required reserves. The policy makers' action to support economy through monetary stimulus, although on track to deliver short-term results, does amplify the long-term risks of excessive debt load in the economy.

**Figure 40. China's international reserves and their monthly change, billions of US dollars**



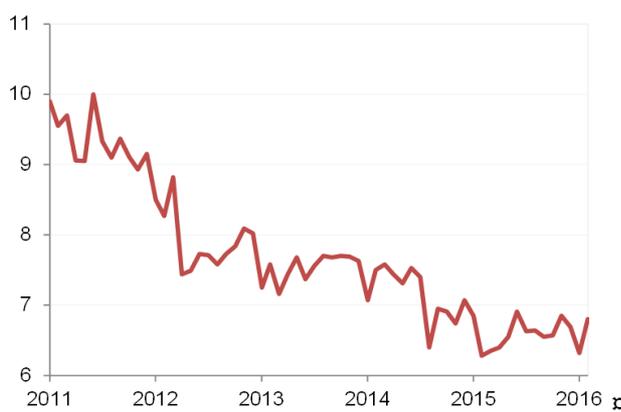
Source: Bloomberg Finance L.P.

**Figure 41. Growth of lending and money supply**

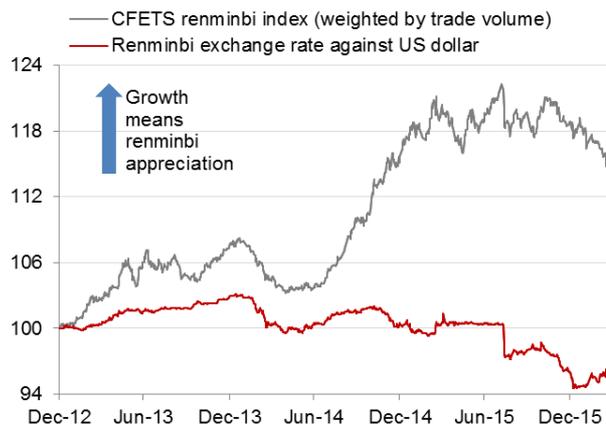


Source: Bloomberg Finance L.P.

It emerged in March in the media that Chinese authorities were contemplating the introduction of a forex sale/purchase tax. This is the so-called Tobin tax, which is meant to boost the cost of transactions and thereby make short-term speculative transactions less attractive.

**Figure 42. China's GDP monthly estimate**

Source: Bloomberg Finance L.P.

**Figure 43. Yuan exchange rates**

Source: Bloomberg Finance L.P., R&F Department calculations

The news is quite a sensation considering the PBC officials' assurances that the national currency is undergoing no pressure and that the long-term plans provide for the yuan to become a global reserve currency. The discussions that this tax is a possibility signal a continued downward pressure on the yuan. The effective trading volume-weighted yuan exchange rate points to the still overvalued Chinese currency rate to the readings of two-three years ago (Figure 43).

Bloomberg-calculated monthly China GDP estimate demonstrated accelerated growth of up to 6.8% in February (Figure 42). This figure is relevant to other indicators that signal that there are no signs of a further economic slowdown in China. However, the first two months' statistics could be misleading owing to the changing dates in the Lunar New Year. This is why statistics due in March are expected to provide more confidence in the judgement on the current economic developments in the Middle Kingdom.

### **Japan: the effects of Abenomics are questioned**

The Bank of Japan meeting of 15 March kept all monetary policy conditions unchanged. At its previous meeting in January, it unexpectedly lowered the deposit rate to -0.1% and introduced a three-level system of deposits with it for commercial banks. The Bank of Japan had to face growing scepticism from market players around its latest move, which could potentially limit the efficiency of its policies according to the principle of self-materialising expectations. The problem is acute enough not only for the Bank of Japan, but also, for example, for the European Central Bank. It became clear from BoJ chairman Haruhiko Kuroda's press conference and the follow-up press release that the outlook for the Japanese had been worsened. It means that the Bank of Japan could continue with its monetary policy easing as soon as at its forthcoming meetings.

Counter-inflation actions are complicated by lower inflation expectations of economic agents. As an example, this can be seen through the outcome in follow-up of large

companies' talks with labour unions concerning wages increase, which usually take place in the start of spring. This year's wage hike is estimated to total approximately two times less than last year. In particular, Toyota agreed to raise their employees' basic wages by only ¥1,500, whereas as much as ¥3,000 were requested from trade unions and this rise in 2015 totalled ¥ 4,000. In spite of the fact that such wage indexation is applied only to a small share of employees, the outcome of the negotiations could be interpreted as a benchmark for pay review across all industries. With the absence of appropriate push from growth of nominal income and, as a result, of domestic consumption, it is very complicated for the Bank of Japan to deliver on its target 2% inflation objective.

### 1.3.2. Financial markets: the decline in volatility may prove temporary

- Volatility in the financial markets seems to have bottomed out, however, the risk it might grow in the second half of the year remains.
- In Russia, easing in monetary conditions is seen despite the moderately tough monetary policy of its central bank.

### Global markets

The decreased short-term risks of the slowdown in the Chinese economy, as well as further quantitative easing by the European Central Bank, coupled with the US Fed's softened rhetoric, combined to cause volatility indicators to fall to lows unseen since autumn 2015. On this background positive dynamics were shown by both protective (state bonds), and risky assets.

Figure 44. RTS and MSCI EM



Source: Bloomberg Finance L.P.

Figure 45. S&P500 and Eurostoxx50

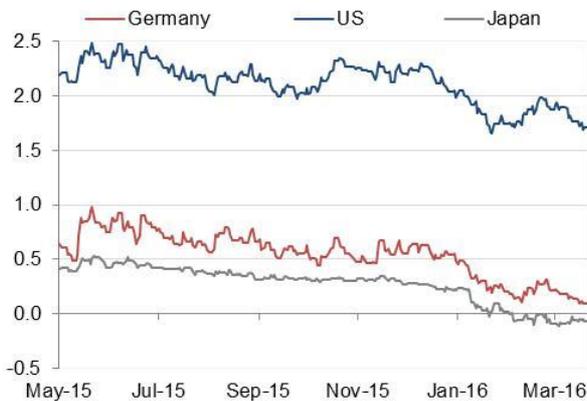


Source: Bloomberg Finance L.P.

The calm that came to the financial markets after the Fed head's speech can yield to growing volatility. Markets are inclined to be focused on the fact that the Fed rate is increased slower, but not on the reasons for it. Apparently, the global slowdown risks, and majorly China, are of much more importance for the Fed than the quite good domestic economic performance. The American central bank's soft policies do reduce this risk somewhat, but it is unable to eliminate it completely. The odds that volatility would grow, therefore, once these risks materialise, are high enough.

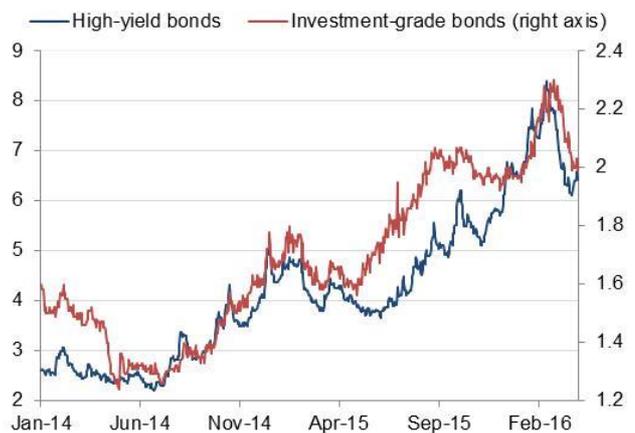
In March, Russian and developing nations' funds (Figure 49) were seeing, for the first time since the middle of 2015, considerable inflows of investors. Overall decrease in volatility and another drop in the developed nations' government bond yields boosted demand for riskier assets, including those in developing countries.

**Figure 46. Yields on 10-year bonds of developed countries, %**



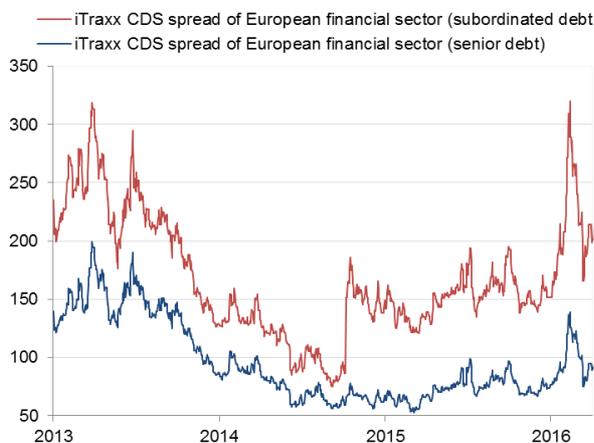
Source: Bloomberg Finance L.P.

**Figure 47. Credit spread of corporate bonds of developed countries, %**



Source: Bloomberg Finance L.P.

**Figure 48. CDS spreads of European financial companies, bp**



Source: Bloomberg Finance L.P.

**Figure 49. Cash flows into Russian and EM funds (accrued, '+' stands for inflow)**

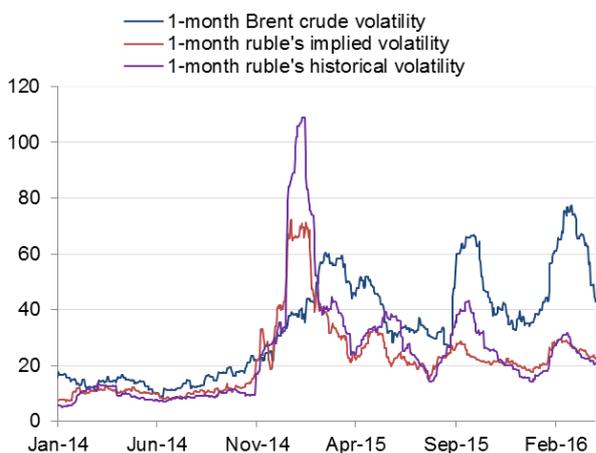


Sources: EPFR Global, Bloomberg Finance L.P.

### Russian markets

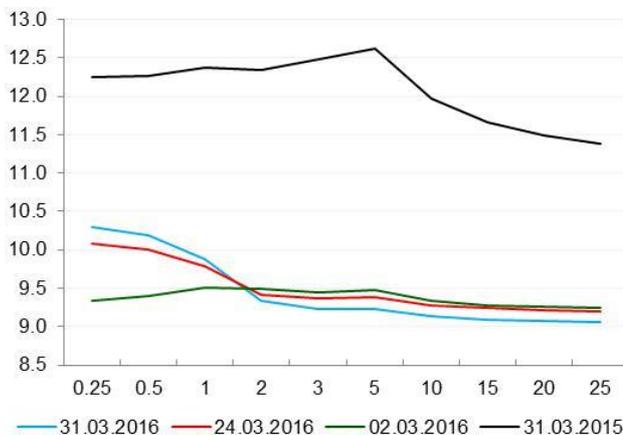
The moderately tough rhetoric of the Bank of Russia, which continued after its 18 March Board meeting, led to federal loan bond (OFZ) yield curve inversion (Figure 51). The curve can remain inverted for an extended period of time. Yields on the short end of the curve are high because of corrected expectations for the paces of BoR monetary policy mitigation in the next months. This is accompanied by declining long yields, thanks to more trust in the BoR-conducted monetary policy and, as a result, expected inflation reduction in the long term. Therefore, long-term interest rates can drop further even as the key rate holds. It will become possible when inflation rates drop and confidence in the BoR-conducted monetary policy strengthens.

**Figure 50. Implied and historical volatility of the ruble and oil prices**



Source: Bloomberg Finance L.P.

**Figure 51. GKO-OFZ yield curve, %**



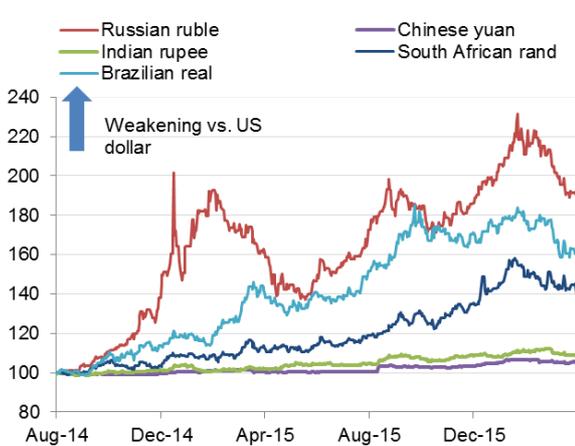
Source: Moscow Exchange

**Figure 52. Exchange rates of emerging economies, commodity currencies (1 August 2014 = 100)**



Commodity currencies: New Zealand dollar, Norwegian krone, Australian dollar.  
Source: Bloomberg

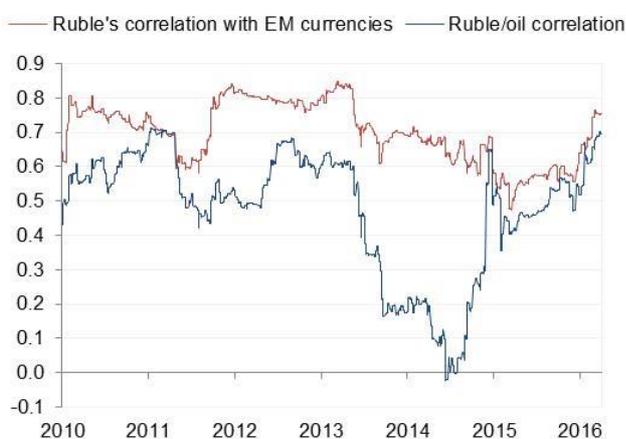
**Figure 53. BRICS exchange rates (1 August 2014 = 100)**



Source: Bloomberg Finance L.P.

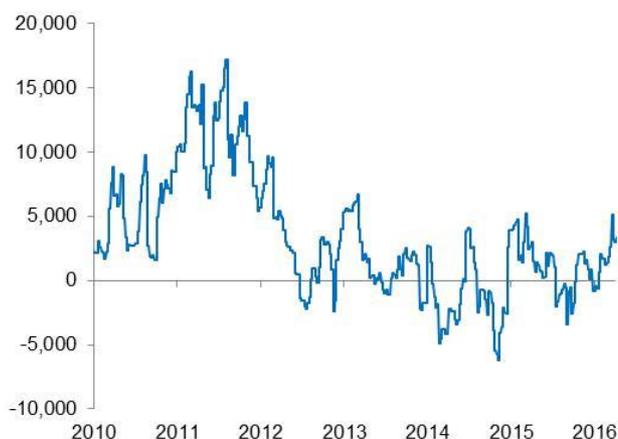
March saw a notable rebound of activity in the primary ruble corporate bonds market. Market players note that demand is two to three years' high. Growing free liquidity of banks could have been one of key reasons why the corporate bonds market was seeing a surge in interest. The high demand resulted in some issuers having failed to place their bonds with a yield less than the BoR key rate, which was also helped by low OFZ yields, especially on the far end of the curve. The state of the corporate bonds market is another sign that monetary conditions are being loosened as the economy switches to liquidity surplus even with the Bank of Russia rate unchanged and its rather tough attitudes.

**Figure 54. Ruble's 12-month correlation with emerging economies' currencies and oil**



Source: Bloomberg Finance L.P.

**Figure 55. Net short position for ruble futures, number of contracts**



Sources: Bloomberg Finance L.P., R&F Department calculations

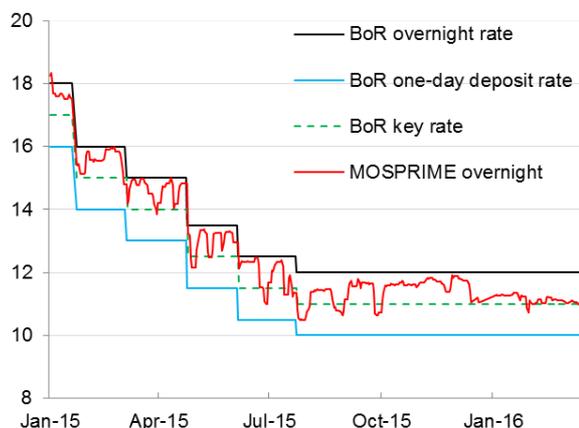
Short-term rates in the interbank market still are in the middle of the interest rate corridor (Figure 57), albeit having grown a bit by the end of the month. The large volume of tax payments to the budget could be behind the increase. Nevertheless, in the current context of growing banking liquidity, the interbank market rate is unlikely to return to the upper BoR interest rate corridor.

**Figure 56. FRA 3X6 and 3M Mosprime spread,% p.a.**



Sources: Bank of Russia, Bloomberg Finance L.P., R&F Department calculations

**Figure 57. BoR interest rate corridor and short-term interbank lending rate**



Sources: Bank of Russia, Bloomberg Finance L.P.

FRA 3x6 spread to Mosprime continued to decrease (Figure 56). Expectations for the banking sector to switch from structural deficit of liquidity to its surplus and, as a result, decreasing interbank market rates, could be the key driver for this reduction.

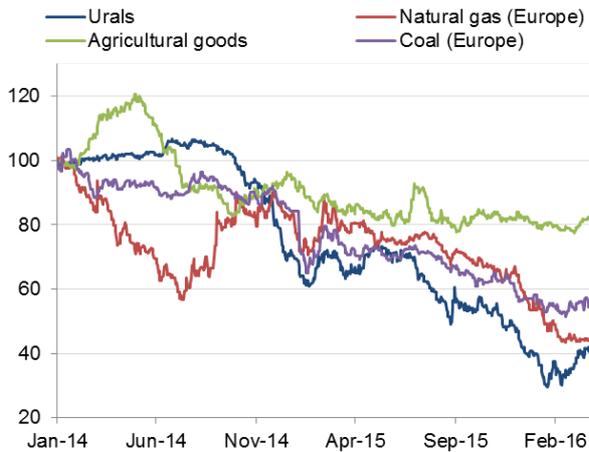
### 1.3.3. Commodity markets: rally and reversal in the end of the month

- The substantial growth in the net exports of oil and petroleum products to China in February is probably driven by the building stocks, rather than current demand.
- Oil and liquid fuel production in the February to March period rose (adjusted for temporary technical factors), largely thanks to Iran.
- The average daily oil production in Russia in March remained level with January-February.
- In the USA, oil production is shrinking at a moderate pace, with the growth of oil and oil product reserves somewhat behind the record performance in 2015.
- The EIA<sup>34</sup> worsened the oil market outlook by projecting 2018 as the year when the balance could be struck.

In the first twenty days of March, with risk appetite growing, prices on most commodities and metals were showing steady growth, followed by a slump (Figure 58, Figure 59).

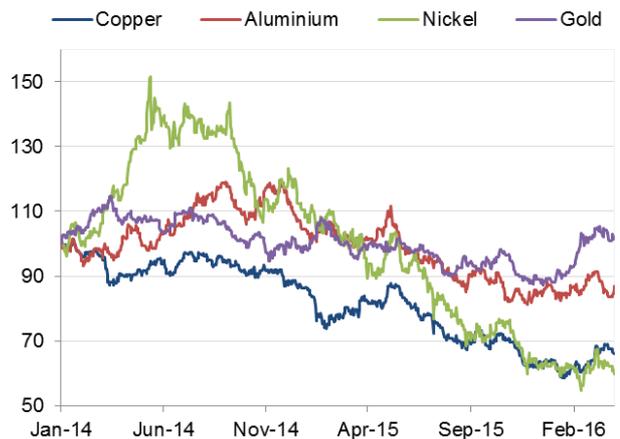
<sup>34</sup> The US Energy Information Administration is an independent agency within the US Energy Department.

**Figure 58. Commodity prices (January 2014 = 100)**



Source: Bloomberg Finance L.P., R&F Department calculations

**Figure 59. Metal prices (January 2014 = 100)**

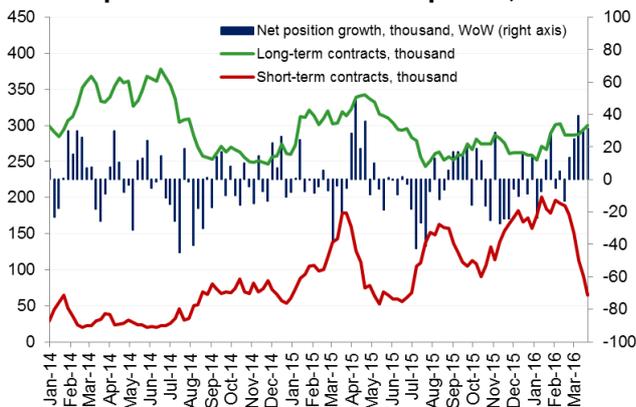


Source: Bloomberg Finance L.P., R&F Department calculations

As fundamental factors overall suggest no growth in store, the probable profit taking by investors, hedge funds primarily, could bring about a drop in prices. As regards oil, it is important to note that the growth in net position (difference between the numbers of long and short positions) in oil futures and options is seen through closing short positions with minimum long positions opening (Figure 60). The Bloomberg Commodity Index grew as much as 7% by 17 March, followed by a 4% decrease by the end of the month. The Baltic Dry Index, which shows demand for large cargo shipping by sea, rose 30% in March.

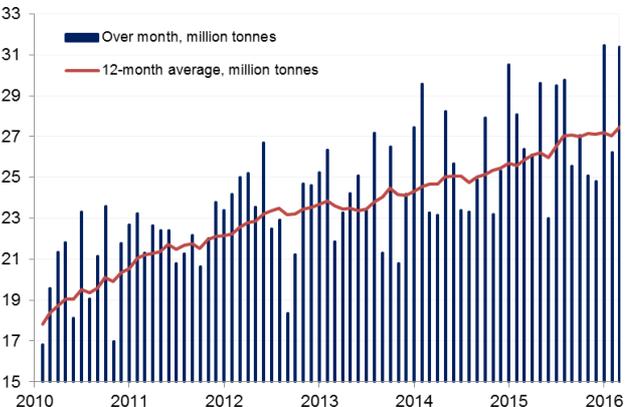
According to China Customs, net oil and petroleum product imports to China were substantially up in February (Figure 61), however, without data on the volume of production and refining it is impossible to draw a clear conclusion on the reasons for such performance<sup>35</sup>. In our opinion, this rise is down to the ongoing stock building effort, rather than more dynamic current demand.

**Figure 60. Short- and long-term contracts and net position for futures and options, WTI**



Sources: US CFTC, Bloomberg Finance L.P.

**Figure 61. Net oil and petroleum product imports to China**



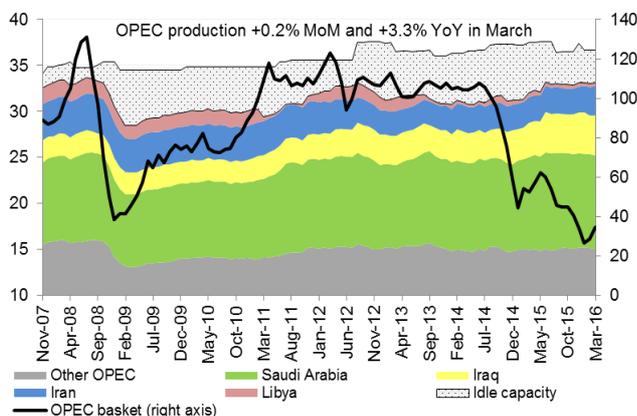
Sources: Customs General Administration, Bloomberg Finance L.P.

<sup>35</sup> Because of the specifics of Chinese statistical methods, data on several indicators for January through February are either unavailable or released with a lag.

According to Bloomberg, February's oil and liquid fuel production in the world remained near record high levels, with the aggregate supply decreased 0.6% MoM on the back of temporary drivers seen in Iraq and Nigeria. In March, OPEC production grew 0.2% MoM, having won back most of the February decline (Figure 62). In less than three months following the lifting of sanctions, Iran managed to boost its production (0.4 million barrels a day, or an increase of 14% for January through March) to counter Bloomberg's January's consensus forecast that it would take at least half a year for the country to hit this target.

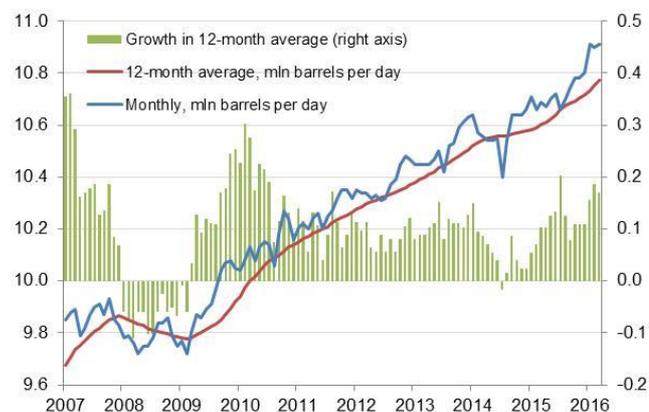
The average daily oil production in Russia in March, according to the Central Dispatch Office<sup>36</sup>, remained level with January-February of the current year at 10.9 million barrels (Figure 63). The relative indicators are still showing positive performance as the production freeze is being enacted.

**Figure 62. OPEC production (mln barrels per day)**



Source: Bloomberg Finance L.P.

**Figure 63. Oil production in Russia**



Source: Central Dispatch Office

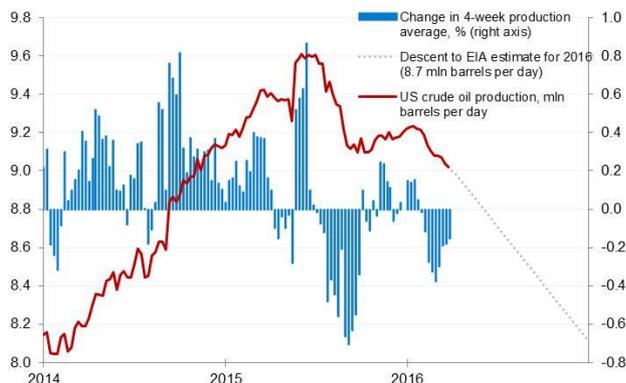
In March, the US rates of reduction in the number of operating oil rigs (-7% in four weeks) stabilised, as did those of production decline. The last indicator overall could be understood to be even reduction to the EIA forecast for 2016 (Figure 64). The large-scale decline in production is set to constrain any resumed hedging by shale companies which, according to the [Financial Times](#), became more active in March when oil started to grow.

Commercial oil and oil product stocks are growing on the back of higher consumption and are only slightly behind the heightened performance in 2015<sup>37</sup>. This speaks in favour of a likely extended oil glut in the market (Figure 65).

<sup>36</sup> Central Dispatch Office of the Fuel and Energy Complex.

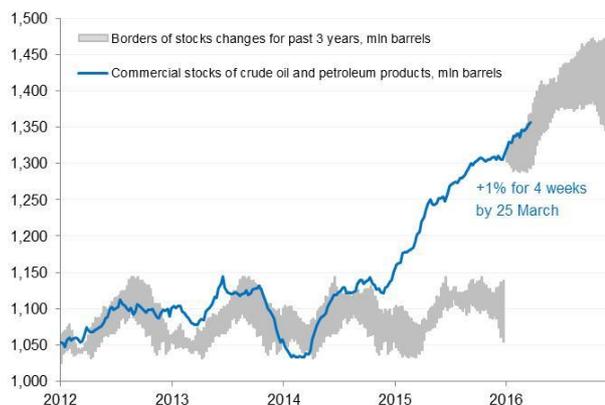
<sup>37</sup> [Vedomosti](#), citing The Wall Street Journal, notes that the US demand for fuel in March 2016 peaked at 9.4 mln barrels/dollar, against 8.8 mln barrels/dollar in March of 2014 and 2015.

**Figure 64. US oil field production, mln barrels per day**



Sources: US Energy Information Administration, R&F Department calculations

**Figure 65. Total US commercial oil and petroleum product stocks**



Sources: US Energy Information Administration, R&F Department calculations

In mid-March, the rise in oil was helped by [the information](#) that the International Energy Agency (IEA) missed in its accounts almost 0.8 million barrels of daily oil glut in 2015, leading some analysts to conclude that these excessive barrels are actually either non-existent or substantially less<sup>38</sup>. As we believe, at least the larger share of these barrels does exist. Such IEA unaccounted-for barrels, albeit in smaller numbers, have always been around inasmuch as the agency accounts no stockpile movements beyond the OECD.

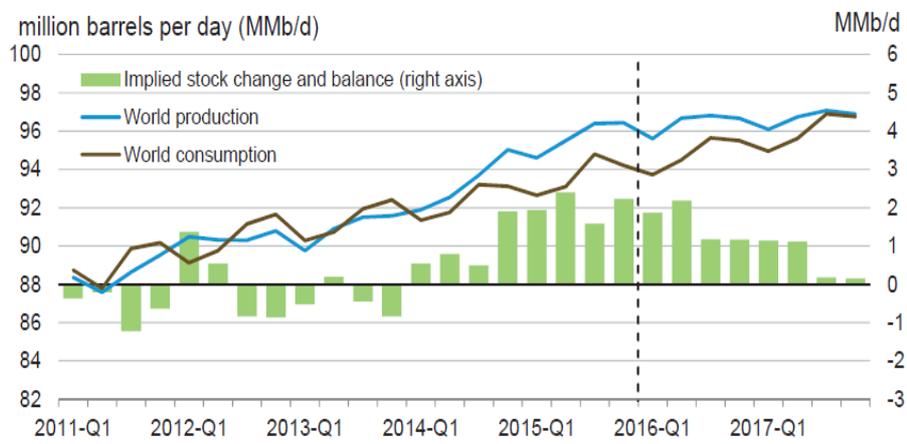
According to our Bloomberg data-based estimations, China in 2015 posted the aggregate growth in strategic and commercial oil stocks of 0.4 million barrels a day, which is half the 'lost' amount. Plus, practice shows that any significant growth in the IEA-unaccounted barrels occur during the periods of oil slump (e.g., in 1998 this value was even higher at 1.3 million barrels a day). It can be attributable to stronger demand for 'cheap' oil from the traditional buyers and investors awaiting a price turnaround which could take on unconventional forms hard to be reflected statistically.

IHS Global Inc., at the request of EIA, came up [with a report](#) on the US oil and gas companies' costs related to field development and drilling; according to this report, these costs in 2012-2015 were down 25–30%. In 2016-2018, the rate of recovery efficiency will slow down, and the aggregate effect is to total 7–22%. Proceeding from Petromatrix GmbH [estimates](#) under which US oil production is profitable at \$45-55 a barrel, by the end of 2018 these figures can fall by approximately \$5-10 a barrel.

The EIA in its March [report](#) downgraded its forecast for balance in the oil market (Figure 66), mainly owing to increased production resistance to falling prices. Downgraded was also the forecast for demand growth, majorly in OECD countries. Brent for 2016 and 2017 is projected to be \$3 and \$10 lower, at \$34 and \$40 respectively, which is close to the Bank of Russia's baseline scenario.

<sup>38</sup> The IEA estimates supply to exceed demand in 2015 by as much as 1.9 million barrels a day, of which almost 0.8 million barrels having entered the OECD storage facilities and 0.3 million barrels being in transit.

**Figure 66. EIA projected global liquid fuel production to consumption ratio**



Source: US Energy Information Administration

## 2. Outlook: leading indicators

### 2.1. Global leading indicators

#### ***2.1.1. The economic rebound in the emerging nations could prove short-term***

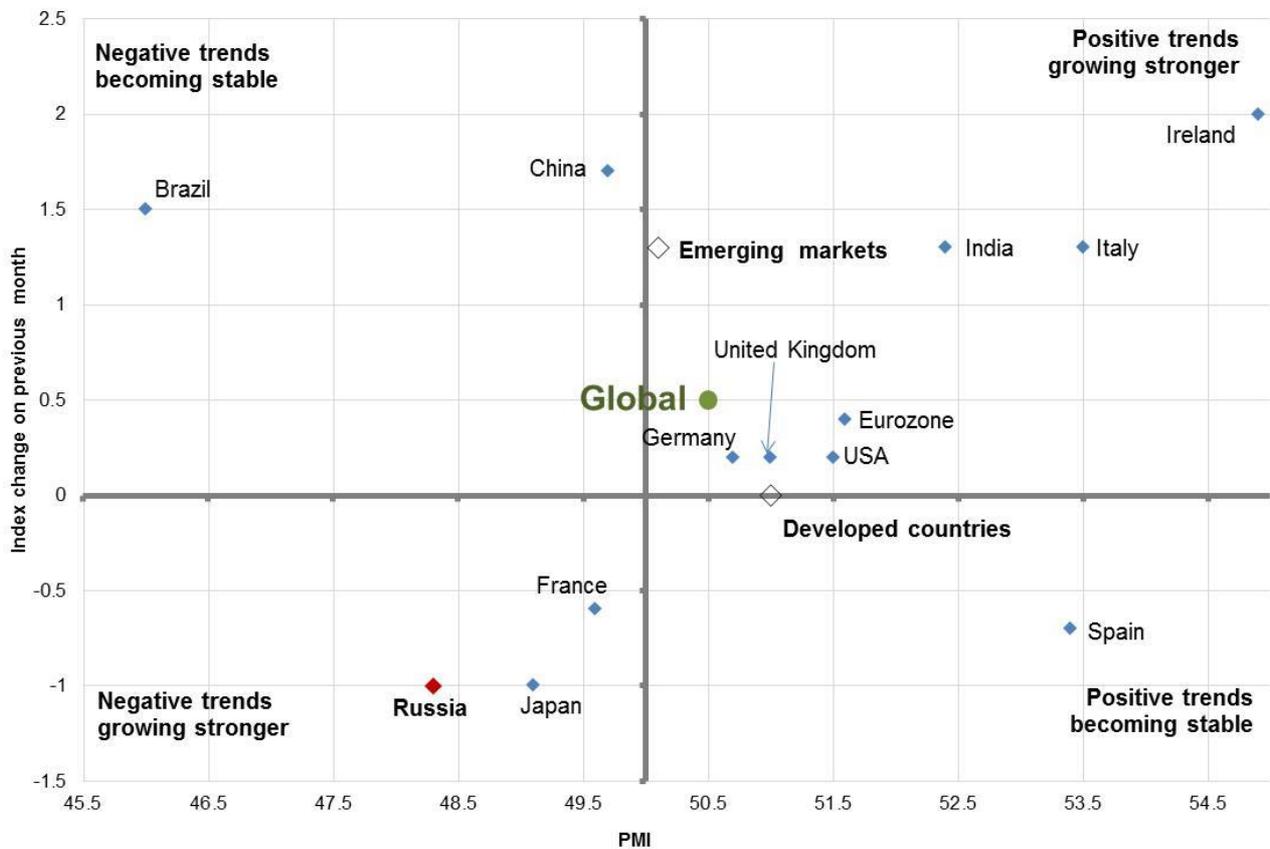
PMI data indices in the processing sector indicate considerable improvement in developing countries (Figure 67). In the last few months, PMI indices spelled strong discrepancy in developed and developing countries' industrial sector dynamics, to the benefit of the former. The March PMI index for developing countries was, for the first time since February 2015, above 50 points<sup>39</sup>. This shift is mainly owing to the Asian economies, China and India. The PMI index for developed countries remains in the growth zone, but the rates stabilised.

The sluggish economic dynamics in developing countries, driven by accumulated collected imbalances, was one of the reasons for the global slowdown in economic activity in general. Improvements in the processing sector, certainly a positive signal, are yet unpersuasive as to how sustainable the nascent recovery in developing countries would be. Remarkable is the example of China where its accommodative policy, necessitated by the slowdown in the middle of last year, has started to deliver. However, the stimulus methods are set to result in further accumulation of imbalances, generating long-term risks to the Chinese economy.

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<sup>39</sup> This value is reflective of both rise and decline. Values under 50 show negative developments; values above 50 indicate positive developments.

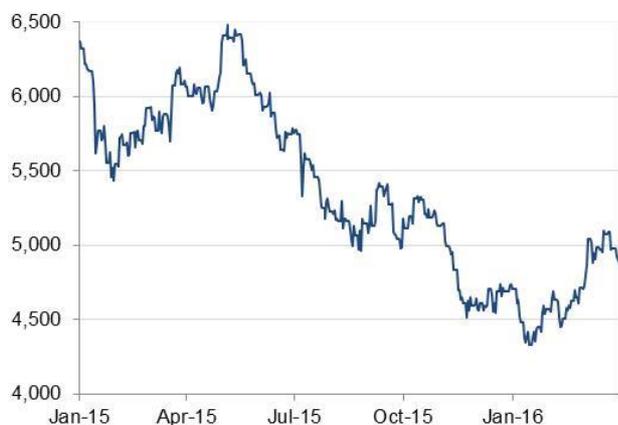
Figure 67. PMI index for manufacturing sector in March and change on February



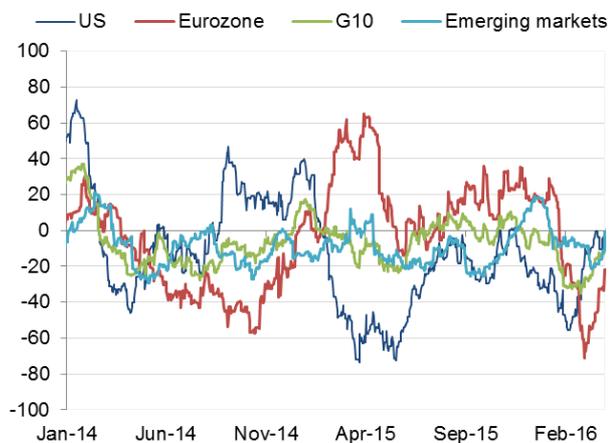
Sources: Bloomberg Finance L.P., Markit Economics.

**Copper prices**, as a global industry indicator, showed adjustive performance, tracking the commodities market (Figure 68). The rally of the middle of January was interrupted as the signs emerged that the copper market imbalance tilted to supply could persist.

Composite Citi macro data indices remain on track to recovery (Figure 69). Apparently, market participants corrected their expectations for activity indicators. These tend to be overoptimistic at the start of a year, resulting in negative surprise developments with potential jitters in financial markets.

**Figure 68. Copper price, \$/tonne**

Source: Bloomberg Finance L.P.

**Figure 69. Surprise indices in macro data releases for the US, eurozone and advanced and emerging economies**

Sources: Citi, Bloomberg Finance L.P.

## 2.2. What do Russian leading indicators suggest?

### 2.2.1. Short-term index GDP assessment: the February data match our expectations

- The last month's macro statistics overall matched our expectations for economic activity in 2016. The March growth in the price of crude is insufficiently steady as yet to signal a sooner than expected economic recovery.

The GDP index estimate<sup>40</sup> for 2016 Q1 was revised only slightly down to -0.4% QoQ in March against -0.3% QoQ in February (seasonally adjusted). As we assumed in our previous estimates of short-term outlook for GDP, the economy will most likely be in the state close to stagnation, at least through the middle of 2016. However, on condition there are no new negative shocks, economic growth could resume in Q3.

The key negative contribution to GDP is still coming from survey data, in particular, PMI indices. Taking into account that oil prices stabilised in February-March and even showed some growth, we expect that there will be no deterioration in survey indicators. It

<sup>40</sup> GDP index estimate is based on Rosstat data on social and economic situation in Russia for the month and other statistical, leading and financial data as of the calculation date; it is built on dynamic factor modelling. These Research and Forecasting Department forecasts are based on model calculations, and their results do not represent the official forecast of the Bank of Russia. The data set used for GDP index estimate includes 110 different time series divided into three groups: 1) survey data, 2) hard data, 3) external and financial data. The detailed methodology for the GDP index estimate is described in the Bank of Russia's Working Paper Series: A. Porshakov, E. Deryugina, A. Ponomarenko, A. Sinyakov. [Nowcasting and Short-term Forecasting of Russian GDP with a Dynamic Factor Model](#) (Working Paper Series. March 2015. No. 2).

gives a certain reason for optimism, allowing to expect improvement of our GDP estimates in the months to come.

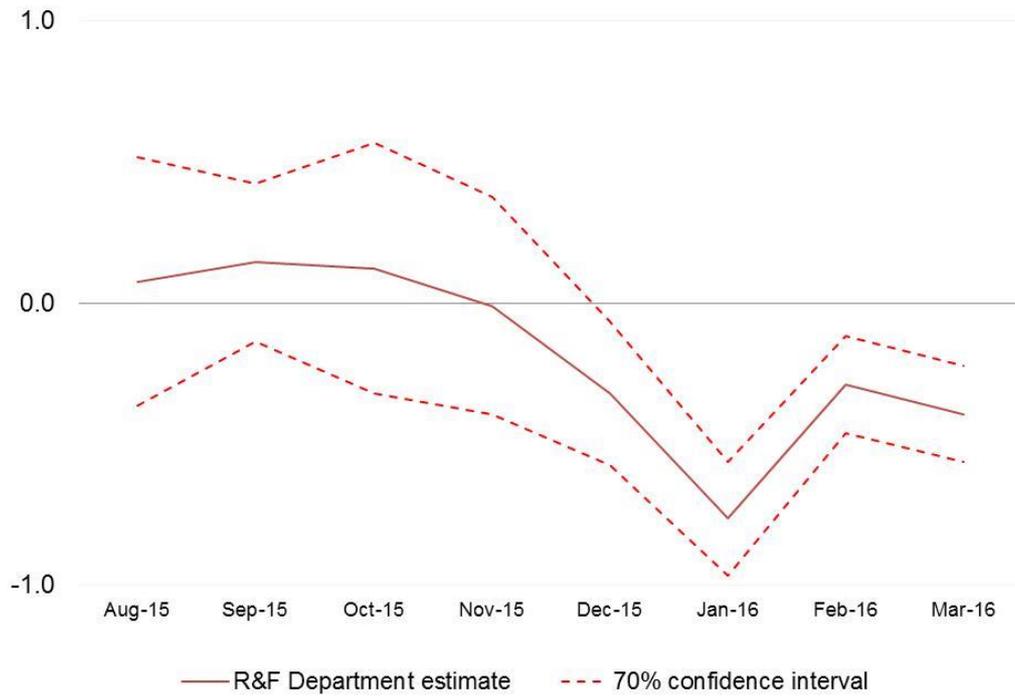
In the real sector, non-financial indicators afford a more favourable picture now. However, positive contribution of the February indicators to short-term index GDP assessment should be treated with caution because of possible overvaluation, with the leap-year effect factored in, of seasonally adjusted industrial output increment.

The oil price indicator, included into our model, did not cause any significant review in the current quarter's GDP estimate in comparison with the results based on survey data and real sector and indicators. It means that last month's oil fluctuations were already fully factored in into the range of the short-term indicators we use for model assessment of GDP. Increased oil prices failed to improve our estimates for GDP outlook. In fact, this price increase for the present should be treated as unstable and not determined by the current oil market fundamentals.

Our GDP assessment for the rolling period between 2015 Q4 and 2016 Q3 is slightly lowered from -2.1% to -2.3%. This relates to the aggregate effect from a certain deterioration in our estimates for Q1-Q3. In this context, the drop in 2016 GDP is expected to be close to 1.0%.

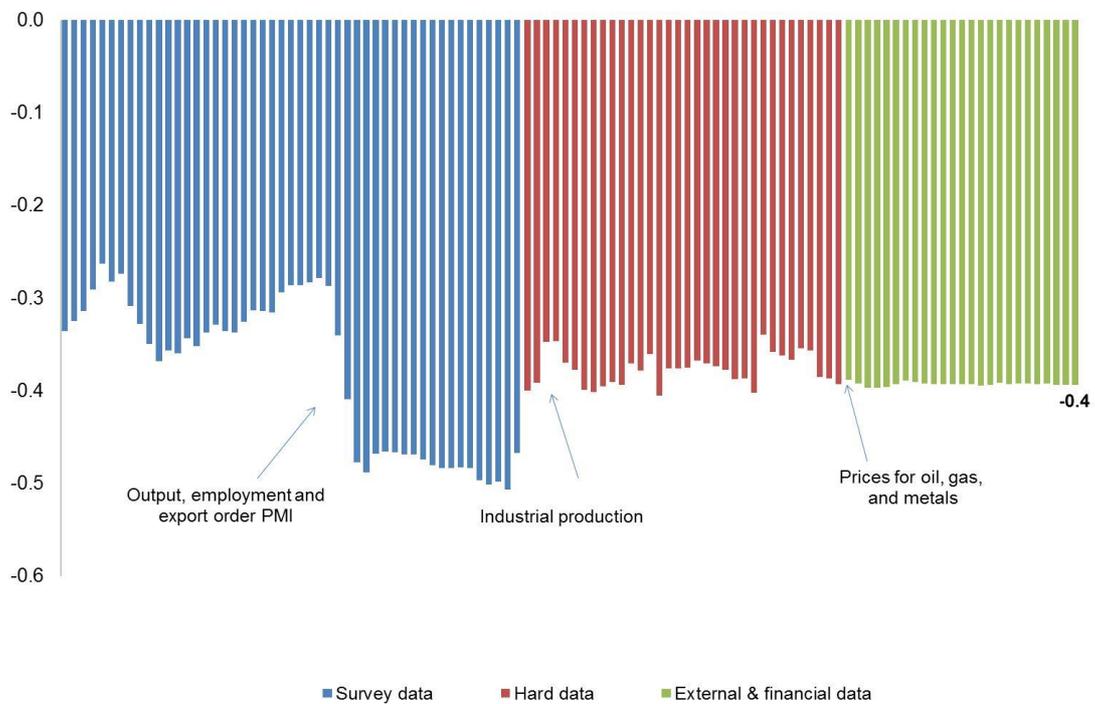
|         | <b>March 2016</b> | February 2016 |
|---------|-------------------|---------------|
|         | <b>% QoQ</b>      | % QoQ         |
| 2016 Q1 | <b>-0.4</b>       | -0.3          |
| 2016 Q2 | <b>-0.1</b>       | 0.0           |
| 2016 Q3 | <b>0.2</b>        | 0.2–0.3       |

**Figure 70. Estimate of GDP growth in 2016 Q1, % QoQ**



Sources: Rosstat, R&F Department calculations

**Figure 71. Evolution of DFM-based GDP nowcast for 2016 Q1 (performed in January 2016), as the model included new indicators, pp**

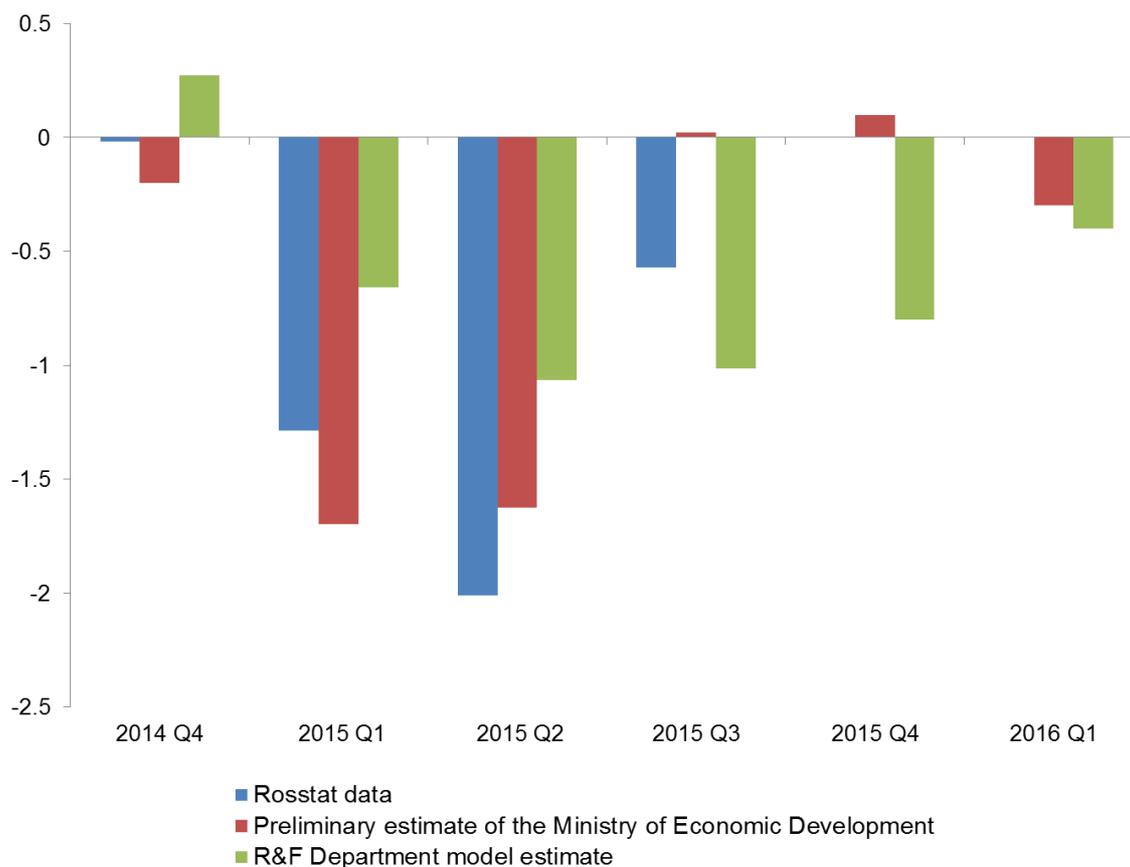


Source: R&F Department calculations

### Relevance of short-term model estimates for current quarter GDP growth, taking into account preliminary Ministry of Economic Development GDP estimates

At the end of March, the Ministry of Economic Development of the Russian Federation published results of the next monitoring 'About the current situation in the economy of the Russian Federation in January-February 2016'. The document normally contains operational data on monthly GDP adjusted for the seasonal component.

**Figure 72. Real GDP growth rates in Russia in 2014-2015, % QoQ (seasonally adjusted)\***



\* For each quarter, Rosstat assessment of seasonally adjusted GDP is given as of the date of publication of the relevant data and disregards changes in seasonally adjusted estimates as new statistical data come in. This is meant to enable comparison between various estimates made at the same point in time.

Sources: Rosstat, Ministry of Economic Development of the Russian Federation, R&F Department calculations

According to the Ministry of Economic Development, the February GDP index, seasonally adjusted, totalled 0.0% on last month (in January a drop of 0.1% was recorded). Our calculations show that if seasonally adjusted GDP in March stays level with the preceding months (which is not unlikely considering the 2016 Q1 slump in oil prices), the total GDP drop for the current quarter will total at least 0.3%. In view of sensitivity of seasonally adjusted estimates to new observations being added, which is especially evident at the times of considerable fluctuations in macroeconomic fundamentals, this assessment can undergo changes afterwards (as GDP data are re-

leased for the quarters that follow).

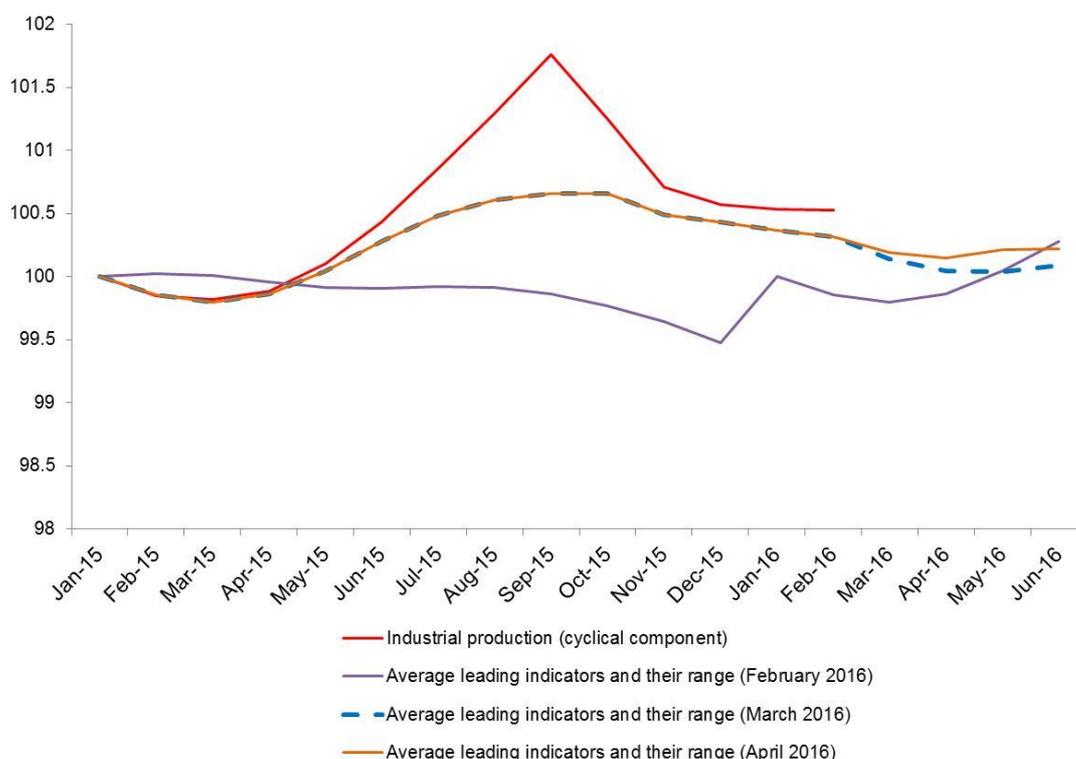
It is also necessary to consider that the Ministry of Economic Development estimates of monthly GDP are tentative and could be put under reviews, deviating, as a result, from GDP estimates by Rosstat. This is especially clear from the discrepancy between the tentative data of the Ministry of Economic Development and final Rosstat estimates for the last quarters (Figure 72). Therefore, the short-term model GDP estimates for the current quarter made even after its expiry (but in anticipation of Rosstat data), can exceed Ministry of Economic Development estimates in terms of accuracy and therefore remain relevant.

### 2.2.2. Leading business indicator: mixed signals

The assessment of the composite leading business indicator as of early April indicated a slight improvement on the previous results obtained two weeks earlier (Figure 73). The positive review of our estimates stems from the data on REB diffusion indices which indicated a notable growth in March of enterprises with a better output and employment, and also a number of the PMI indices in processing for March in the part of complete production and new export orders.

Although statistics on separate PMI indices remain rather weak, last month saw a stop in the descent of PMI indices marked by leading qualities more than others.

**Figure 73. The cyclical component of industrial production (January 2015 = 100, seasonally adjusted) and leading business index**



Sources: Rosstat, HSBC, Russian Economic Barometer, R&F Department calculations

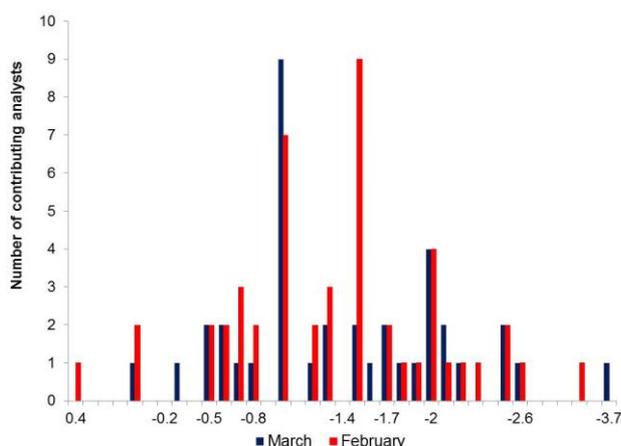
### 2.2.3. Financial analysts' forecasts

#### 1) GDP

Bloomberg consensus forecast data of as of March 31 show that most of analysts kept their earlier estimates for 2016 GDP growth. The forecast was reviewed, if at all, only upwards: a month earlier, most of respondents expected annual GDP to drop 1.3–1.5%, while as of the end of March surveys showed prevailing expectations for a lighter recession at 1.0% (Figure 74).

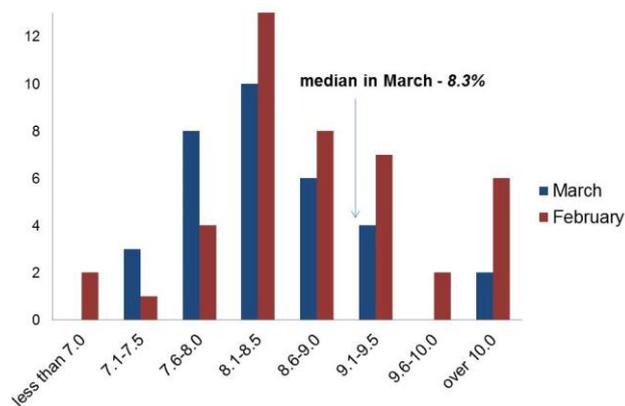
Improvement in some analysts' forecasts came in on the back of rising oil in March, as well as the positive production statistics in manufacturing in February. Our index GDP assessment (see Section 2.2.1) for 2016 in general matches analysts' consensus forecast.

**Figure 74. GDP growth forecasts by external analysts in 2016**



Sources: Bloomberg Finance L.P., R&F Department calculations

**Figure 75. Consumer inflation forecasts by external analysts in 2016, % YoY, annual average**



Sources: Bloomberg Finance L.P., R&F Department calculations

#### 2) Inflation

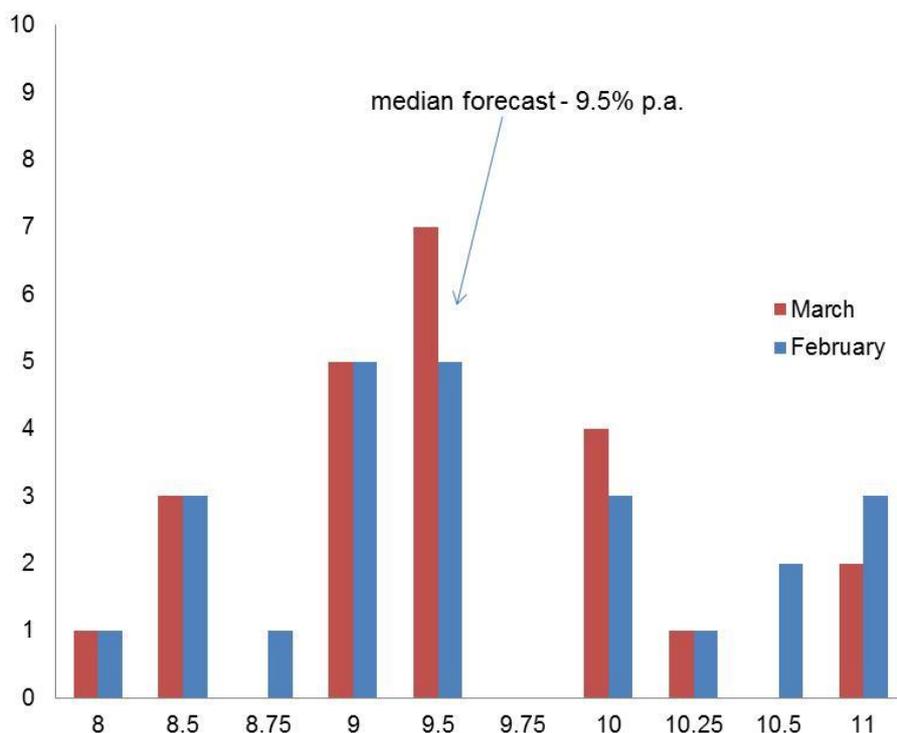
The actual average 2016 median forecast for consumer inflation based on February readings fell from 8.6% in February to 8.3% in March, triggered by the slowdown over the past weeks (Figure 75). There was more density in 2016 inflation forecasts for the last month, in a sign of decreased uncertainty as to the economic situation as oil was showing positive performance and the ruble strengthened in March.

#### 3) Bank of Russia monetary policy

Expectations of Bloomberg analysts for the Bank of Russia key rate for the end of 2016 are 9.5% (Figure 76). The median rate forecast therefore has remained unchanged

for two months in a row. Bloomberg forecasts are updated on a monthly basis and, in fact, represent a summary of forecasts of relatively few experts, not the actual forward interest rates. However, that fact that consensus forecasts remain pretty much unchanged after the Bank of Russia rate decisions, provide indirect evidence that the current monetary policy of the national central bank in general matches market expectations.

**Figure76. Bank of Russia key rate forecasts by external analysts as of late 2016, % p.a.**



Sources: Bloomberg Finance L.P., R&F Department calculations

### 3. In focus

#### ***The impact of informal employment on GDP and inflation***<sup>41</sup>

- Although growing informal employment helps stabilise unemployment rate and the labour market overall, it generates a labour quality problem.
- Short-term implications of rising informal employment for inflation are mixed.
- Long term, protracted high informal employment would be an essential constraint to potential economic growth, strengthening labour market segmentation. This would amplify inflation risks as the aggregate demand resumes to grow.

In this section, labour market analysts identify several aspects of Russian labour market which are of great importance for GDP and inflation.

1. Informal employment<sup>42</sup> in the course of 2015 was rising, tracking the long-term trend, interrupted only for a while when informal employment reacted to the global financial crisis of 2008-2009 with a lag of almost two years. Informal employment was growing sharply at the end of 2008, having peaked in the middle of 2009, and thereafter dropped as general employment was recovering. Between January and September 2015, the number of informally employed rose by 500k, seasonally adjusted, reaching a total of 14 million people<sup>43</sup>. It is three times more than the number of all Russian unemployed, which grew between January and September 2015 by as many as 200,000 people (Figure 77).

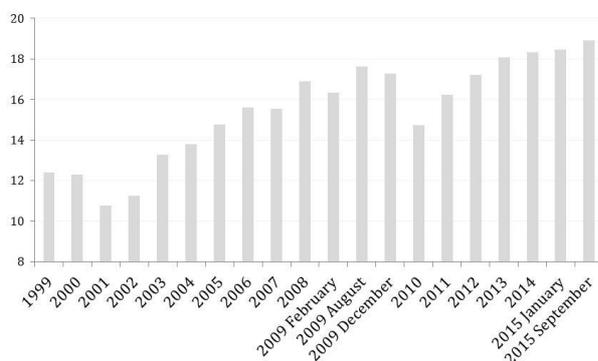
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<sup>41</sup> The content as related to the description of informal employment is based to a large extent on: Gimpelson V., Kapeliushnikov R. *Between Light and Shadow: Informality in the Russian Labour Market*, Discussion Paper, Institute for the Study of Labor in Bonn, 2014; Gimpelson V., Zudina A. *Informal Sector Employees in the Russian Economy: How Many and Who Are They?* // *Voprosy Ekonomiki*. 2011. No. 3; Gimpelson V. E., Kapeliushnikov R.I. *Is it Normal to Be Informal?* // *HSE Economic Journal*. 2013. V. 17. No. 1. Pp. 3–40; Voskoboinikov I.B., Gimpelson V. E. *Labour Productivity Growth, Structural Shifts and Informal Sector Employment in the Russian Economy* // *Voprosy Ekonomiki*. 2015. No. 11. Pp. 30–61; Gimpelson V. E., Kapeliushnikov R.I. *Russian Labour Market Model: Ordeal by Crisis* // *Journal of the New Economic Association*. 2015. No. 2. Pp. 249–254; Gimpelson V. E., Kapeliushnikov R.I. *Labour Market Adjustment: Can Russia be Regarded as a Special Case?* // *The Oxford Handbook of the Russian Economy*. Book 1. M., 2015. Pp. 1173–1225; Kapeliushnikov R.I., Oshchepkov A.Yu. *The Russian Labour Market: Post-Crisis Development Paradoxes* // *Voprosy Ekonomiki*. 2014. No. 7. Pp.66–92.

<sup>42</sup> Please refer to the definition of informal employment and its statistical measuring methods and the publication: Gimpelson V., Zudina A. *Informal Sector Employees in the Russian Economy: How Many and Who Are They?* // *Voprosy Ekonomiki*. 2011. No. 3.

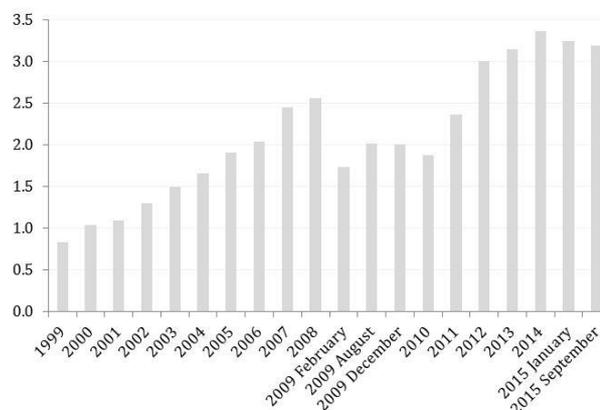
<sup>43</sup> In the upper estimate, informal employment totals roughly 30 million people (see the textbox below).

**Figure 77. Share of informally employed in total number of employed, based on population survey data, %**



Sources: Rosstat, R&F Department calculations

**Figure 78. Number of informally employed to unemployed ratio**



Sources: Rosstat, R&F Department calculations

2. The current growth in informal employment is connected with the fact that in Russia this phenomenon is often a forced alternative to unemployment and its growth therefore stabilises current unemployment rates in a scenario when negative shocks affect incomes.

#### **Informal employment: definition and statistical dimension**

Informal employment is defined twofold. Its first definition is production-related. The informal sector is understood to cover all market activities. The second definition is of a legal nature. The informal sector is identified depending on the extent to which companies and employees are complied with formal rules.

In case of Russia, there are two production-based approaches in use with labour market analysts.

1. Informal employment, based on population surveys (Rosstat). Informal employees will include individuals who identify themselves as working on their own:

- individual unincorporated entrepreneurs;
- individuals hired by individuals, private businessmen and farming enterprises;
- self-employed individuals working in their own agricultural, forestry, hunting or fishing enterprise with sale / exchange operations.

Additional data on the specifics of the informal sector are available from the 'Russian monitoring of the economic situation and health of the population by the Higher School of Economics' (RLMS), based on annual household surveys on a wide range of questions.

2. Residual employment (differential) of all employed in the economy and in enterprises, based on the labour force balance calculated. This estimate treats incorporated entrepreneurs as informal sector employees.

Decreasing real income and demand for labour mainly makes workers migrate to informal employment, not to the unemployed category. Estimates show that for 2005-

2013<sup>44</sup> the probability that a salaried employee would leave the formal sector and enter the informal one is twice higher than the probability he/she becomes jobless (3.5% against 1.8%). This is due to underdeveloped unemployed support system in Russia (in Russia, unemployment benefit is only 8% of the employee's last salary, against 50% in the EU<sup>45</sup>).

After the 2008 crisis, the number of informally employed to the number of jobless ratio fell because of the outpacing growth of unemployment (in particular, because of unemployed support programmes), but partially recovered by August 2009, triggered by the outpacing growth of informal employment into which this unemployment component morphed (Figure 78). In the period between 2014 and September 2015, the ratio under study was steady, which could be explained by either insignificance of the cyclical drop or a gradual settling of the unemployed in the informal sector.

As a result, unemployment rate in itself misrepresents the true picture in the labour market even after taking into account the negative demographic structural shifts which reduce the Russian natural unemployment rate, which is currently within 5-6%<sup>46</sup>.

3. Unemployment growth is also checked in the current conditions by flexible salaries and, to a lesser extent, part-time employment and age-related retirements from the labour market. As regards the latter, pensioners can return to the labour market once the situation improves. The resulting situation could be paradoxical, when economic growth is accompanied with simultaneous increase in unemployment, which was more than once seen in the USA.

Importantly, part-time employment indicators should neither be overrated. According to Rosstat, in 2015 Q4, only 2.5% of payroll employees worked part-time and 7.6% were on unpaid vacation. This totals about 3 million people. In 2014, this number was 3.2 million people<sup>47</sup>. Consequently, part-time employment saw no growth in 2015.

In our opinion, the Ministry of Labour statistics are somewhat unfit to estimate part-time employment to a high quality standard as their employment indicators are often overestimated (in particular, for the purposes of financial support to enterprises and regions). The amount of overestimation per se varies depending on the economic situation. The implications of growing salary non-payments for the labour market are small because of the low base effect (Figure 79). Much more important is the slowdown in the growth of nominal salaries, which means a significant drop in real wages at the current rates of inflation.

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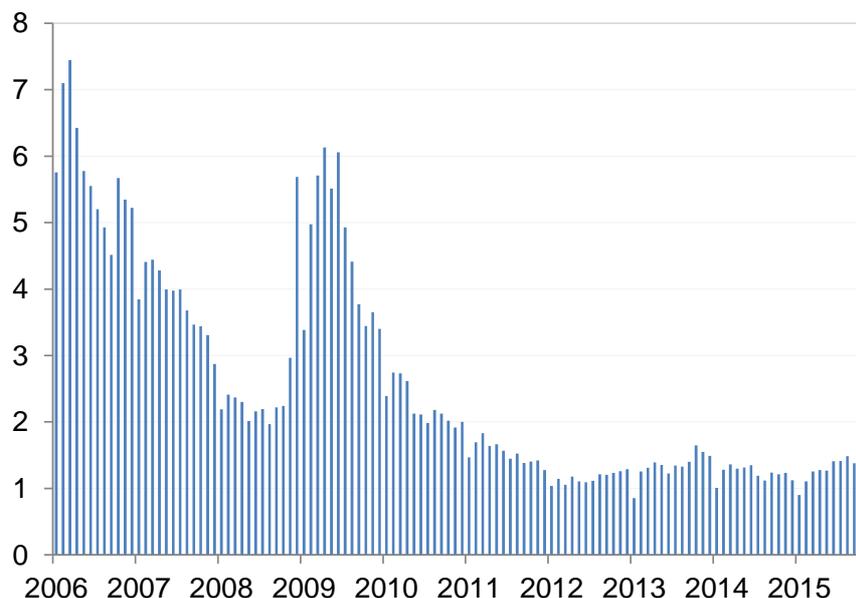
<sup>44</sup> Gimpelson V., Kapeliushnikov R. *Between Light and Shadow: Informality in the Russian Labour Market*, Discussion Paper, Institute for the Study of Labor in Bonn, 2014.

<sup>45</sup> *Ibid.*

<sup>46</sup> Kapeliushnikov R.I., Oshchepkov A.Yu. *The Russian Labour Market: Post-Crisis Development Paradoxes* // *Voprosy Ekonomiki*. 2014. No. 7. Pp. 66–92.

<sup>47</sup> Official 2013 data remain unavailable.

**Figure 79. Overdue wage arrears in January 2006 prices, billions of rubles**



Source: Rosstat

4. The second key growth driver for informal employment is the low pace of new job creation in the formal sector. Some workers will potentially agree to leave the informal sector but are unable to as the rates of new job creation are weak. For economic restructuring in the aftermath of the recent weakening of the ruble and decreased real wages, the economy should add jobs at faster rates.

In Russia, the new jobs to occupied jobs ratio remains low. For an example, the average business cycle job creation ratio in the USA and Europe is about 15%. In Russia, this ratio in 2014 was on the order of 10%. It probably remained flat for 2015, despite the fact that the economy was faced up with a structural shift, not a business cycle.

5. Informal employment (hidden unemployment) occurs in the non-tradables sector (unexposed to import substitution), that is, we are seeing inter-segmental migrations (formal and informal) in one industry. Non-tradables sector activities are marked by lower labor productivity. Estimates show<sup>48</sup> that in Russia migration to informal employment leads to decreased aggregate labour productivity (or at least its slowdown). Therefore, the real problem for the market is low quality of employment.

The Russian informal sector accounts for 10% of added value and 40% of hours worked<sup>49</sup>. Key activities in this sector include agriculture, construction, transport, retail, telecommunications and, to a lesser extent, manufacturing.

<sup>48</sup> Voskoboinikov I.B., Gimpelson V. E. Labour Productivity Growth, Structural Shifts and Informal Sector Employment in the Russian Economy // *Voprosy Ekonomiki*. 2015. No. 11. Pp. 30–61.

<sup>49</sup> Voskoboinikov I.B., Gimpelson V. E. Labour Productivity Growth, Structural Shifts and Informal Sector Employment in the Russian Economy // *Voprosy Ekonomiki*. 2015. No. 11. Pp. 30–61.

With the current production capabilities, structural transformation of the economy would be expected to deliver labour productivity growth as long as labour is supposed to migrate to the higher productivity sectors (i.e., the tradables sector). But in Russia job creation in the export-oriented sector is limited by high uncertainty and risks to business expansion and therefore causes labour to migrate to the informal low-productive sector. As a result, the average labour productivity is declining.

6. On entering the informal low-productive sector, employees tend to reside there for a rather long period of time, which impacts negatively on long-term economic growth outlook.

The probability that an informal sector employee may stay therein or leave the labour market one year after is estimated to be 70%<sup>50</sup>. In 2014-2015, growth in informal employment was forced (with no entrepreneurs entering the shadows: according to the available data for 2014, the number of informal sector employees rose from 60% to 64%), reducing this probability to 60%. With a 4% probability, such employees will and join the jobless, and, with a 34% probability, they will migrate into the formal employment category (including self-employed). The average stay in the informal sector is 2.3 years against 9 years for the formal one. For a number of reasons<sup>51</sup>, informal sector employees are more likely to lose qualification than those in the formal one. More importantly, because informal sector employees include a lot of young<sup>52</sup> individuals with secondary education<sup>53</sup>, their chances to build up human capital, as long as they are in this sector, are also small on average.

The two long-term implications of residing in the informal sector are as follows: a) salary distribution is tilted towards lower compensations (in particular, because of forced migrations to the informal sector and the lower labour productivity, which change the average salary in the economy); b) labour productivity in economy drops, i.e., a potential GDP growth is down.

7. In general, for short-term inflation, the growth of informal employment has twofold implications. On the one hand, forced migrations to the informal employment are putting downward pressure on salary levels (and its long-term growth rates); and, on the other hand, employment in the informal sector weakens deflationary influence on salaries in the formal, more economically important, sector. It remains to be established which effect prevails.

8. Unemployment rate is unfit to appropriately reflect a cycle and disinflationary pressure in the labour market. To obtain more reliable estimates, it would be better to look into the probability of becoming jobless, plus to adjust unemployment rate based on the share of salaries in the left tail of the distribution.

<sup>50</sup> Gimpelson V., Kapeliushnikov R. *Between Light and Shadow: Informality in the Russian Labour Market*, Discussion Paper, Institute for the Study of Labor in Bonn, 2014.

<sup>51</sup> Gimpelson V., Zudina A. *Informal Sector Employees in the Russian Economy: How Many and Who Are They?* // *Voprosy Ekonomiki*. 2011. No. 3.

<sup>52</sup> Almost half (40%) of 15-19 year-olds are employed in the informal sector, as many as 20% of 20-29-year olds belong there; the average informal sector employee in 2008 was aged 35.

<sup>53</sup> Higher education employees are estimated to total only 15%.

9. Informal employment is an important obstacle for structural shifts in the economy. It is necessary to drag down uncertainty as a production growth factor and to reduce informal employment through this.

10. In the future as demand resumes to grow, it would have stronger inflation effect because of higher informal employment.

The probability for a comeback from unemployment to the formal sector is higher than that from the informal to formal sector (30% versus 25%). When demand growth resumes, it will be of proinflationary nature as it is hard to come back from informal unemployment. The growing sector is expected to call for more labour utilisation and then more employment, though the latter may fail to oblige. It is important to look into salaries in the tradables sector, which is a growth engine for the economy wherein the first signs of inflation are likely to manifest themselves.

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