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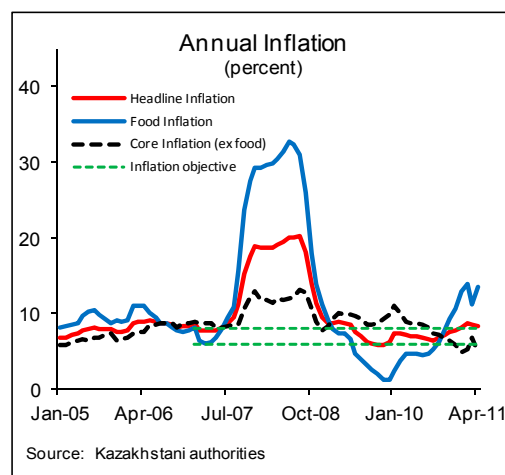
I. KAZAKHSTAN: RESPONDING TO INFLATION¹

Inflationary pressures in Kazakhstan have intensified with the rise of global commodity prices. Given the additional risks to prices from the rapid pace of economic recovery, planned public expenditure increases, and strong capital inflows, a comprehensive policy response is needed to control inflationary pressures. In this regard, the NBK should continue to gradually withdraw monetary accommodation, and clearly communicate the causes and outlook for inflation. In addition, hard-to-reverse fiscal outlays—particularly higher wages—should be avoided, while administrative measures to control inflation should be used cautiously and phased out over time in favor of existing social safety nets. Further ahead, efforts should be undertaken to strengthen the transmission of monetary policy, improve social safety nets, and enhance the economy’s supply response.

A. Background

1. **The surge in global commodity prices has revived concerns about inflationary pressures in Kazakhstan.** Annual headline inflation increased to about 8½ percent in April, exceeding the official objective range of 6-8 percent for the fourth consecutive month. The increase in inflation is largely attributable to the pass through of surging global food prices despite the wide use of administrative measures. Domestic food prices grew by 13½ percent year-on-year in April, up markedly from 4¾ percent in July 2010 when the global food price shock began to emerge. Alternative measures of core inflation suggest, on balance, that high food prices have been the main driver of inflation.

2. **Looking ahead, the risks of more broad-based price pressures developing are elevated.** Although demand-led price pressures currently appear contained, Kazakhstan’s economy is recovering faster than anticipated, and the base of growth is beginning to broaden; monetary policy remains accommodative; and short-term capital inflows have recently increased. Moreover, large planned increases in public wages and pensions, and the need to harmonize various tariffs—related to transportation, utilities, and services—with those in the customs union with Russia and Belarus, pose additional risks to inflation and inflation expectations. In addition, while global commodity prices have eased from recent highs, the present context points to a sustained period of volatility of food and oil prices.

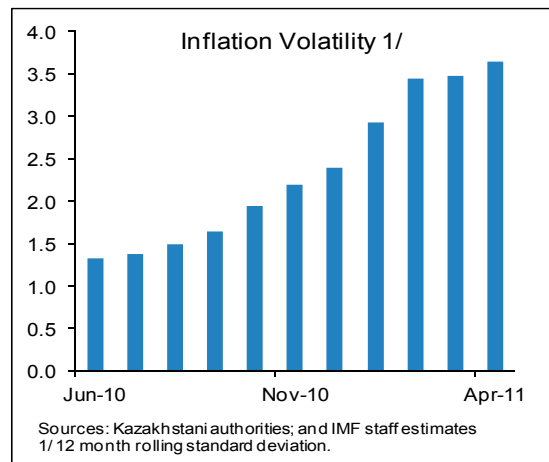


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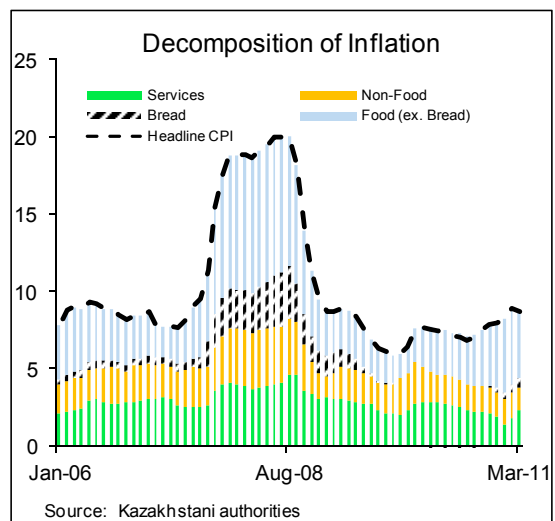
3. **Against this background, this chapter examines the short-term drivers of inflation in Kazakhstan.** In particular, a small dynamic model capturing both supply (food price shocks) and demand factors is estimated. The findings suggest that shocks to food prices have considerable effects on headline inflation, while the impact from traditional demand factors is also significant, if somewhat less pronounced. Moreover, evidence of second round price effects is detected through both the impact of lagged core inflation and the transmission of food price effects to core inflation. The findings presented in this chapter underscore the need for a comprehensive policy response to control inflationary pressures.

B. Inflation Developments: A Large Role for Food

4. **Inflationary pressures began to emerge following the unexpected surge in global wheat prices in mid-2010.** Although headline inflation averaged about 7 percent year-on-year during the second half of 2010, domestic food inflation more than doubled to 10½ percent over this period. This resulted in a marked rise in the volatility of food inflation—driven by key staple items, notably bread products—and thus an increase in the volatility of headline inflation. As the prices of other major commodities began to increase, the pressure on headline inflation intensified, causing it to exceed the upper bound of the 6-8 percent objective range by January 2011.

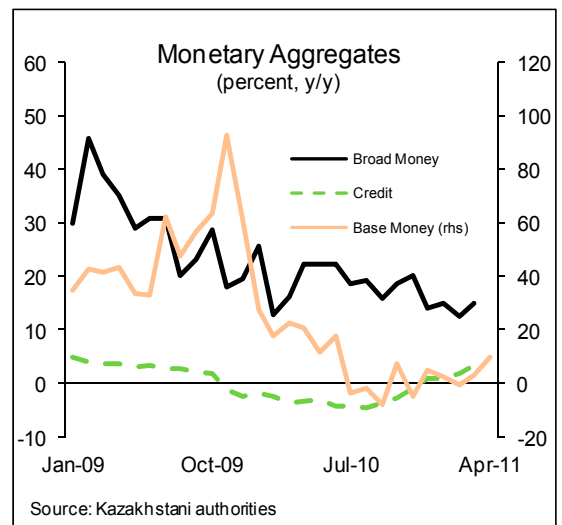
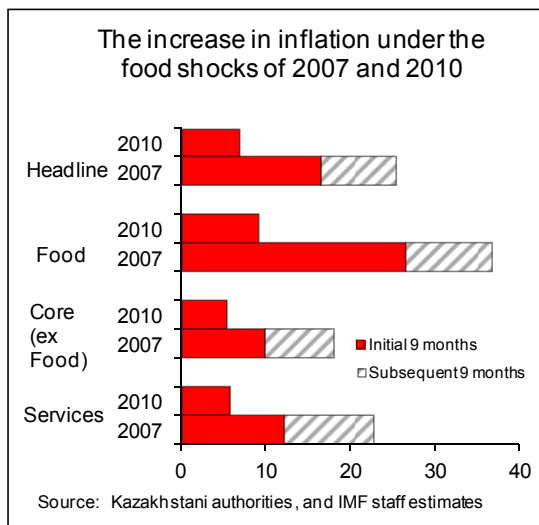


5. **The link between global food prices and headline inflation appears strong.** As in other emerging and developing economies, food accounts for a large share of the consumption basket in Kazakhstan (38.8 percent). Bread products alone account for nearly 9 percent, providing a strong, direct channel from the spike in global wheat prices to headline inflation and inflation expectations. A decomposition of the factors contributing to headline inflation shows the relatively high contributions of food and bread (or wheat-related) products. Indeed, domestic food prices appear to adjust quickly and in line with changes in global food prices. Non-food and services prices also tend to rise over the same periods, signaling the onset of second-round effects, although their response is somewhat more contained.



6. **Although the current global food shock appears less pronounced than during 2007-08, the risks to global commodity prices remain to the upside.** A comparison of the inflation effects during the initial nine months of the two global food shocks suggests that the current shock is more moderate. The cumulative increase in headline inflation is less than half of that experienced during 2007-08, while the impact on food inflation is about one-third. Nevertheless, the current global commodity shock remains persistent, with only modest declines in the prices of major commodities from recent highs. Moreover, the combination of low global food inventories, ongoing risks to oil prices, and supportive global demand conditions underscore the prospects for continued volatility of commodity prices.²

7. **Demand factors do not appear to have contributed meaningfully to the recent pickup in inflation.** The economic recovery in Kazakhstan has largely been driven by extractive industries and a few related sectors, such as transportation and communications. Key domestic drivers of pre-crisis growth—such as construction, real estate, and investment—remain subdued, reflecting the ongoing difficulties in the banking system and private sector deleveraging. As a result, domestic credit growth contracted through most of 2010, and remains negative in real terms, while the growth of monetary aggregates remains contained despite the continued large increases in public wages.



² See World Economic Outlook, April 2011 for a detailed discussion on the commodity price outlook.

C. Estimating Short-Run Drivers of Inflation

8. **The role of non-monetary factors—namely food price shocks—in contributing to inflation in Kazakhstan appears to be significant.** A small dynamic model for inflation is estimated with quarterly data to capture both supply and demand factors. In addition, an alternative model is specified to explore the potential impact of food price shocks on core inflation. The combined results help to determine the key short-term drivers of inflation in Kazakhstan, and also shed light on the prospects for second round price effects, underscoring the implications for macroeconomic policies. The first model takes the following form:

$$\pi_t = \beta_0 + \beta_1(L)\pi_{t-1} + \beta_2(L)\hat{O}_t + \beta_3(L)\Delta m_t + \beta_4(L)\Delta u_t + \beta_5(L)\Delta e_t + \beta_6(L)(\pi f_t - \pi_{t-1}) + \varepsilon_t. \quad (I.1)$$

9. **The underlying specification given in (I.1) is common in the literature.** In particular, it can be traced to a standard augmented Phillips curve, reflecting the combination of a wage equation and price markup equation, as in Gordon (1985).³ Here, π_t is quarterly inflation, \hat{O}_t is the output gap, m_t is broad money, and u_t are unit labor costs. Lower case letters denote logarithms, Δ is the difference operator, (L) is the lag operator, and ε_t is an *iid* error term. Following Mohanty and Klau (2001), the model is augmented with supply-side variables: the change in the nominal Tenge/\$ exchange rate, Δe_t , to capture import price effects (where a rise indicates depreciation), and a food price shock (or supply shift factor), $(\pi f_t - \pi_{t-1})$, where πf_t is domestic food inflation. All parameters ($\beta_1 \dots \beta_6$) are expected to be positive.

10. **The preferred model shows that food prices are the main short-term determinant of inflation (Table I.1).** The sample period covers 2002Q2-2010Q3, and the standard tests for robustness are confirmed.⁴ Model [1] finds that both demand and supply factors are significant, but it is clear that food price shocks dominate. The variable capturing food prices is significant at the 99 percent level, and has a magnitude of 0.51, suggesting that about half of a food price shock passes through to headline inflation over the near-term.⁵ In

³ The wage (or unit labor cost equation) is assumed to be a function of lagged inflation, the unemployment rate, the productivity gap, and supply shift factors. The price markup equation is similarly defined (see Appendix).

⁴ The Breusch-Godfrey test confirms no serial correlation up to the fourth order, White's test does not indicate heteroskedasticity, and the Chow Breakpoint test shows no parameter instability at the midpoint of the sample. As a further test for parameter stability, a recursive one-step-ahead forecast test was conducted and the residual plot indicates that the estimates exceed the standard error bands in the first two quarters of 2006. However, the remainder of the sample is well within the tolerance bands.

⁵ A term capturing energy price shocks was also considered, but found to be insignificant in the estimation. This likely reflects the fact that Kazakhstan is an energy producer, and also that it maintains various price regulations on energy products, which together limit the impact of rising global oil and energy prices on inflation.

addition, the exchange rate, while significant at only the 10 percent level, has a large magnitude impact as well. Unit labor costs, also appear important, but impact with a lag of about one year. Given the weight that food carries in the consumption basket, as well as the direct role that food prices and the exchange rate have on inflation expectations, it is not surprising to find these as important drivers of short-run inflation in Kazakhstan, as is commonly found in other emerging economies (see BIS, 2001).

Table I.1: Short-term Drivers of Inflation in Kazakhstan

	[1]	[2]	[3]
	Inflation	Inflation	Core Inflation 1/
L1 Inflation	0.47 [0.033]*		
L1 Core Inflation		0.55 [0.124]*	0.19 [0.088]*
L2 Core Inflation			0.20 [0.086]*
Output Gap	0.02 [0.007]**	0.03 [0.016]**	
LD4 Unit Labor Costs	0.03 [0.016]**		
LD1 Exchange rate	0.04 [0.013]**		
Food Price Shock	0.51 [0.023]*	0.50 [0.056]*	0.36 [0.037]*
Constant	0.01 [0.001]*	0.01 [0.002]*	0.01 [0.002]*
Observations	34	34	35
SE Regression	0.002	0.004	0.004

1/ Excluding food.

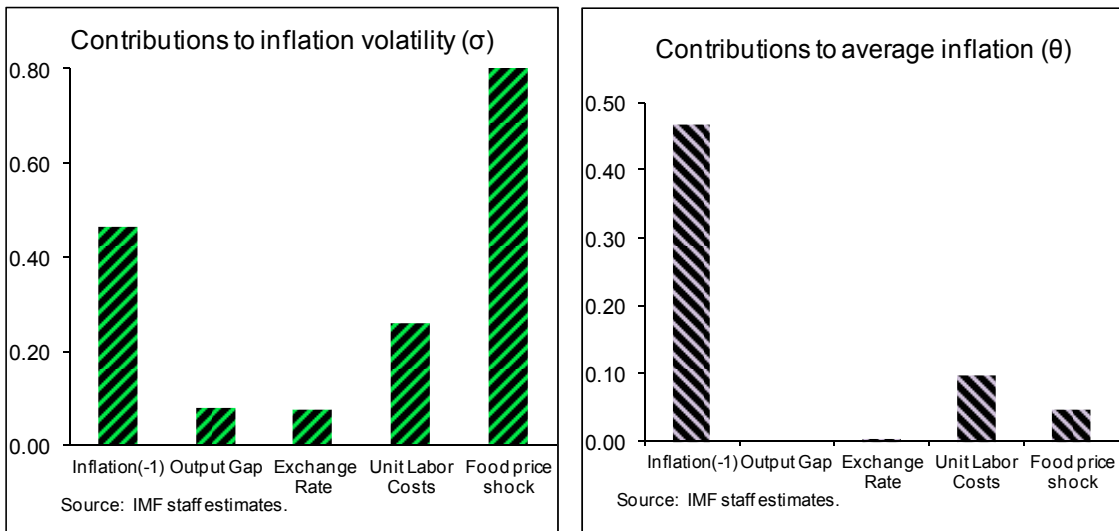
Robust standard errors in brackets.

* significant at 1%; ** 5%; *** 10%

11. **The role of demand factors in short-run inflation dynamics is rather limited.** The level of significance and magnitude of the output gap in Model [1] are weak as compared against the supply variables. This is likely attributable to a combination of factors, including the measurement errors associated with output gap estimates, as well as the known difficulty of adequately capturing demand dynamics through the output gap in emerging economies. Perhaps surprisingly, money growth was not found to be significant in the final model. However, given the relatively high degree of dollarization, the early stages of financial market development, and uncertainty over stability of money demand, the link between

monetary variables and inflation could be blurred in the short-run, and thus not readily captured in this model specification.

12. Assessing the contributions of demand and supply factors to inflation further underscores their relative importance. Using the results from Model [1], the contributions of the estimated determinants to inflation dynamics are measured. Two metrics are considered: contributions to the volatility of inflation (σ), and contributions to the mean value of inflation (θ).⁶ It is clear from the figures that the output gap (the demand factor) has a limited role in contributing to the volatility of inflation or average inflation. The food price shock, however, shows a marked contribution to inflation volatility, but much less to average inflation, as might be expected given its definition as a shock variable. Unit labor costs and inflation persistence (denoted by lagged inflation) are important drivers of inflation volatility and average inflation, while the exchange rate is rather limited across measures.



13. In order to explore the scope for second round inflationary effects, additional exercises were considered. First, Model [2] was estimated by replacing lagged inflation in Model [1] with lagged core inflation (excluding food).⁷ The results in Table I.1 underscore the presence of feedback effects running from core inflation to headline inflation, and reinforce the persistence of inflation observed previously.⁸ Indeed, the impact of core

⁶As in Mohanty and Klau (2001), σ is calculated as the ratio of the standard deviation of each determinant multiplied by its coefficient estimate to the standard deviation of inflation, while θ is calculated as the ratio of the mean of each determinant multiplied by its coefficient estimate to the mean rate of inflation.

⁷ See Habermeier et. al (2009) for a similar exercise conducted for a panel of emerging economies.

⁸ Note, given that the food price shock is defined using lagged inflation, in general it may not be possible to take the coefficient on lagged inflation as an unbiased estimate of inflation persistence. However, alternative exercises were conducted using a simple autoregressive model for inflation, confirming the relative magnitude of inflation persistence found in Model [1].

inflation is notably larger in Kazakhstan than found in similar studies for other emerging economies, suggesting that the emergence of second round price effects could prove challenging to quickly reverse (see Habermeier et. al, 2009). Second, given the strong role of food prices observed in Model [1], a simple AR model was specified to shed light on the potential transmission from food price shocks to core inflation.⁹ The results for Model [3] suggest that domestic food prices have a significant effect on core inflation, reinforcing the risks to inflation persistence identified in Model [2].¹⁰ However, as might be expected, the impact is somewhat less (about two-thirds) than observed for headline inflation. In practice, however, the transmission from food price shocks to core inflation is likely to be blurred by the use of administrative measures.

14. On balance, the results underscore the importance of supply factors in determining short-run inflation, and suggest several directions for policy. First, food price shocks (driven by external factors) tend to dominate inflation dynamics, and can thus cause a large short-run divergence between headline and core inflation. This suggests that monetary conditions could become distorted if policy were to focus solely on core inflation, leaving room for inflation expectations to become decoupled from policy objectives, and ultimately requiring a tightening of monetary policy that could negatively affect output growth. As such, there is scope for monetary policy to respond to rising headline inflation when there is a large externally-driven divergence between core and headline inflation. In addition, this suggests that greater exchange rate flexibility, coupled with efforts to enhance the economy's supply response, would help facilitate adjustment to external shocks. Second, wages appear to have a significant role, particularly with regard to contributions to average inflation. This underscores the need to promote productivity and labor market flexibility, particularly given the prospect for additional public wage increases. It also highlights the importance of avoiding further excessive wage increases.

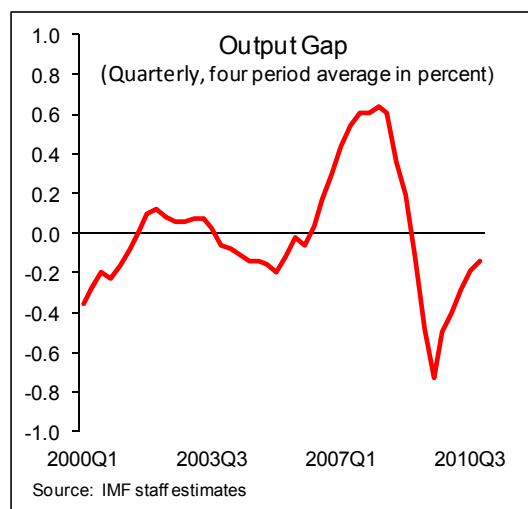
⁹ Model [3] was found to comply with the standard robustness tests discussed above.

¹⁰ Additional exercises were conducted to establish the potential impact of food price effects on core inflation. First, using Model [1], headline inflation was replaced with core inflation as the dependent variable. The estimation confirmed strong food price effects on core inflation, with a magnitude of around two-thirds of that observed for headline inflation. Second, using Model [3], the food price shock ($\pi f_t - \pi_{t-1}$) was replaced with headline inflation, π_t . The results are quite similar to those of Model [3], showing a large, significant impact of headline inflation on core inflation. While these additional exercises suggest the transmission of food price shocks to core inflation, both directly and via headline inflation, additional research along this avenue would be warranted.

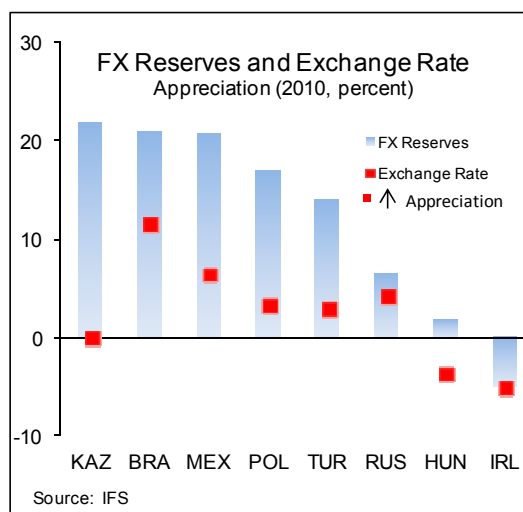
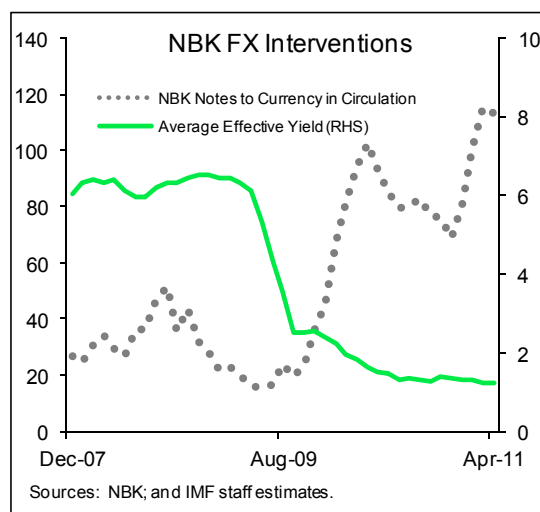
D. Mounting Inflation Risks

15. Current economic conditions point to more pronounced effects on inflation.

Kazakhstan's economy has rebounded sharply, growing by 7 percent in 2010 from 1¼ in 2009, suggesting that the output gap is quickly closing. While this is largely driven by extractive industries, the base of growth is becoming more broad based, the authorities are implementing their ambitious development plans, and targeted support to hard hit sectors continues. Moreover, incomes have increased in the wake of the crisis and official data suggest that the labor market is tightening, with unemployment at an historic low of 5½ percent (compared to about 7½ percent prior the crisis).

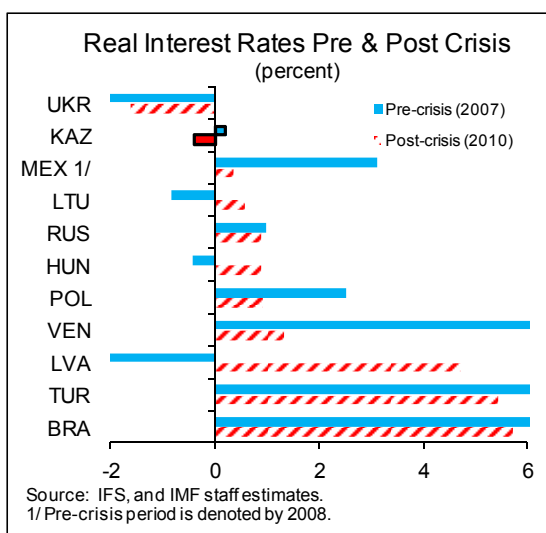


16. Short-term capital inflows have increased recently. The rebound in global oil prices and associated appreciation of the Russian ruble has contributed to increased foreign exchange inflows and speculative appreciation pressures on the tenge. The NBK engaged in heavy sterilized intervention during the early part of 2011 to maintain the relative stability of the tenge, mirroring the situation of early 2010, and resulting in a large build-up of FX reserves. While the tenge has gained little more than 1 percent (in nominal terms) against the U.S. dollar since January, the amount of outstanding NBK short-term notes has surged, increasing by nearly \$4 billion to almost \$10 billion (or 113 percent of currency in circulation) in the year through April. As a result, the growth of monetary aggregates has remained somewhat contained, but it could prove challenging to maintain the current pace of intervention despite the declining yield on these notes.



E. Ongoing Policy Response

17. **Macroeconomic policies remain supportive of growth.** Despite the recent 50 bp hike in the policy rate to 7.50 percent, the monetary stance remains accommodative. Real interest rates¹¹ are negative, declining since the start of the crisis, and reserve requirements on both domestic and foreign currency deposits are at historic lows. Domestic market rates are also low relative to pre-crisis levels, with the three-month interbank rate hovering around 1.7 percent, and the (average weighted) deposit and lending rates at 3.6 and 12.4 percent, respectively. At the same time, banks remain flush with liquidity, holding approximately \$11-12 billion in correspondent accounts at the NBK. While the authorities plan a gradual fiscal consolidation from 2011, public wages and pensions will be increased by 25-30 percent (for the third consecutive year), and increased expenditure on the development program is under way.



18. **The authorities have relied mainly on administrative measures to limit the impact from higher global commodity prices.** The swift adoption of targeted administrative measures—export bans, moral suasion, signed memoranda with producers, and the activation of the state grain reserve, among others—mitigated the immediate pass-through to headline inflation as food prices increased in mid-2010. However, such measures are unsustainable, undermine the role of market forces, and present undue fiscal costs. Moreover, these measures have had only a limited effect as headline inflation has recently become elevated and food prices have continued to rise.

19. **A combination of factors, including structural and institutional features, has conditioned this policy response.** First, so far, there has been little observed pass-through from rising global food prices to core inflation. Second, the heavy reliance on administrative measures in general reflects the limited traction of monetary policy (caused by high dollarization and low financial market development), and thus a legacy of heavy government intervention. Third, it also reflects a lack of domestic competition and productive capacity across industries, notably in agriculture and food production. Finally, institutional shortcomings limit the efficient administration of targeted social assistance.

¹¹ The real interest rate measured using the policy rate and headline inflation is negative.

F. Policy Considerations and Conclusions

20. Kazakhstan is facing increased challenges from higher global commodity prices. While the signs of second round inflationary effects are currently limited, the marked rise in food prices and headline inflation pose risks to inflation expectations. This comes as the economic recovery is gaining speed, spending on the development plan is accelerating, and macroeconomic policies remain in an accommodative mode. However, this also comes at a time when the difficulties in the banking and corporate sectors remain significant and call for continued post-crisis support. The authorities have relied mainly on administrative measures to mitigate the effects from rising global food prices. Nevertheless, such policies are not sustainable, could create market distortions, and are unlikely to prove effective in the context of prolonged commodity price volatility and increasing scope for demand-led price pressures.

21. Against this background, an encompassing policy response is needed to control inflation and mitigate the scope for second round price effects. In the near term, policymakers should consider the following measures:

- *Gradually remove the accommodative bias in monetary policy that was necessary during the crisis.* Monetary policy needs to be well positioned to respond to more broad-based price pressures, underscoring the need to establish a neutral, if not slightly restrictive, monetary stance. The NBK's readiness to manage a possible increase in the inflow of short-term capital would benefit from enhanced liquidity management (in coordination with the Ministry of Finance) and implementation of the announced macro-prudential enhancements, including graduated provisioning requirements against lending in foreign currency to unhedged borrowers.¹²
- *Improve the communication of monetary policy.* NBK policies would be better supported by anchored expectations. Monitoring inflation closely, clearly communicating the current and expected causes of inflation, and reinforcing the commitment to maintaining the current objective range, are key steps in this regard.
- *Establish a prudent fiscal stance.* Fiscal policy should support price stability and guard against procyclicality, while balancing the need to maintain essential support to vulnerable sectors of society. To this end, existing social safety nets should be employed.
- *Use administrative measures cautiously.* Given the near-term impediments to administering well-targeted social assistance, administrative measures have provided some relief from rising prices. However, such measures should remain selective and time bound.

¹² Regulatory and prudential responsibilities now reside with the NBK following the recent integration of the Financial Supervision Agency.

22. **Looking further ahead, structural reforms efforts would enhance Kazakhstan's resilience to external shocks.** The aim should be to reduce the economy's dependence on administrative measures through the following actions:

- *Improve monetary policy efficiency.* This involves strengthening the monetary toolkit, including by promoting the development of domestic financial markets and competition in the banking sector. In addition, greater exchange rate flexibility would enhance the traction of monetary policy and economy's ability to adjust to external shocks.
- *Develop adequate social safety nets.* Current institutional arrangements would benefit from proper identification and timely provision of well-targeted assistance to the most vulnerable in society.
- *Enhance the economy's supply response.* Continued implementation of structural measures aimed at improving competitiveness, promoting agricultural productivity, and labor market flexibility, some of which are embedded in the Development Plan, would help prevent inflationary shocks in the future.

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