

Chapter IV – Annexes

Annex 1

Financial Soundness Indicators of Kazakhstan ¹

(in per cents)

	2006	2007	2008	6 month of 2009	9 month of 2009
Banking Sector ²					
<i>Capital adequacy ratios</i>					
Regulatory capital to risk-weighted assets	14.82	14.18	14.86	-2.24 (16.54)	-7.81 (16.65)
Regulatory Tier 1 capital to risk-weighted assets	10.35	10.23	11.64	-2.90 (12.61)	-8.53 (12.68)
Capital to total assets	9.81	12.20	12.22	-3.07 (11.29)	-8.16 (10.91)
Loans with delinquency over 90 days less specific provisions to capital	n/a	n/a	10.18	-95.50 (23.93)	-38.62 (28.71)
Capital to total liabilities	10.88	13.89	13.92	-2.99 (12.80)	-7.56 (12.28)
<i>Asset quality</i>					
Loans with delinquency over 90 days to loan portfolio	n/a	n/a	5.15	13.42	17.52
Provisions to loan portfolio	4.99	5.88	11.09	30.61	36.38
Provisions for loans with delinquency over 90 days to loans with delinquency over 90 days	n/a	n/a	68.96	74.05	78.59
Large exposures to equity	n/a	50.43	52.17	60.75	59.93
<i>Profitability ratios</i>					
Return on assets (ROA) ³	1.97	2.55	0.23	-36.37 (0.07)	-31.34 (0.13)
Return on equity (ROE) ³	20.05	22.87	1.88	-809.64 (0.62)	-1606.12 (1.19)
Interest rate margin to gross income	51.07	51.60	49.03	38.72	13.15
Non-interest expenses to gross income	76.26	55.08	59.01	83.45	96.10
Personnel expenses to non-interest expenses	13.41	15.31	12.49	6.92	2.59
Spread between reference lending and deposit rates ⁴	n/a	1 101.97	763.39	338.68	430.94
<i>Liquidity ratios</i>					
Liquid assets to total assets	16.10	13.90	4.33	17.07	19.34
Liquid assets to short-term liabilities ⁵	n/a	56.31	16.04	53.67	51.50
Customer deposits to total loans to non-financial entities	87.55	45.30	51.35	53.56	60.74
<i>Market risk sensitivity</i>					
Open net FX position to equity	-3.92	-0.82	6.87	-284.99 (0.21)	-136.12 (7.39)
Other Financial Corporations ⁶					
Assets to total assets of the financial system	18.85	21.42	38.04	19.03	18.40
Assets to GDP	20.18	24.79	45.47	18.34	17.63

Corporate Sector**(large and medium-size enterprises)**

Return on assets (ROA)	20.99	20.44	17.99	11.77	n/a
Return on equity (ROE)	49.27	48.01	43.22	29.42	n/a
Total liabilities to equity (leverage)	1.38	1.33	1.46	1.72	n/a
Net open FX position to equity			-40.78	-53.26	n/a
Current liquidity ratio	1.06	1.45	1.38	1.39	n/a

Households Sector

Household debt to GDP	16.5	22.33	16.82	17.46	17.23
Household debt to disposable income	35.71	45.21	32.99	30.57	29.43

Source: FSA, SARK, NBRK calculations

¹ – financial soundness indicators are calculated based on the IMF Methodology (“Financial Soundness Indicators. Compilation Guide, IMF 2007) and explanations by the IMF. Therefore, the values of indicators may be different from those calculated by the supervisory authority.

² – the data presented in brackets is for the banking system of Kazakhstan except BTA Bank, Alliance Bank and TemirBank.

³ – ratio of net income before tax to average value of assets. Within-year values of income before tax are calculated in annual terms by multiplying a current value of the indicator by a numerical value inversely proportional to the corresponding period of the year. The average value of assets is calculated as the mean of positions at the beginning- and end-period. The average cost of capital is calculated as the mean of positions at the beginning- and end-period.

⁴ – reference lending rate is calculated as the ratio of the sum of interest income on loans (interest income on bank loans to customers) to the average position on loans. Reference deposit rates – the ratio of interest expense on deposits (expense related to payment of interest on attracted deposits) to the average position on deposits. The average position on loans and deposits is the mean of positions at the beginning- and end-period on loans and deposits, respectively. The data is presented in percentage points.

⁵ – short-term liabilities are calculated including net position on transactions with financial derivatives.

⁶ – significant decrease in the ratios in mid-2009 is related to the termination of the license for certain types of banking operations of JSC “NWF “Samruk-Kazyna” and companies comprising the holding company as well as JSC “KazMunaiGas” in February 2009.

The Early Warning Systems on Financial Crises for Kazakhstan

The improved methods¹ of the early warning system of financial crises (EWS) is designed on the basis of a modified methodology of EWS signal approach developed by Kaminsky, Lizondo, Reinhart². As part of the improved methodology the parameters specific for Kazakhstan and determining an ability of economic variables to predict a crisis (threshold, “noise-to-signal” ratio) have been computed.

1) Defining a crisis situation

Empirically, a crisis situation is defined by the *Exchange market pressure index* (EMPI) which is calculated as an average weighted index of changes in the exchange rate and international reserves:

$$EMPI_t = \gamma_1 \Delta wr_t - \gamma_2 \Delta rer_t$$

where Δwr – is a change in the international reserves (except gold) against a previous month, Δrer – a change in the real exchange rate of the Tenge/USD against a previous month³. Since the Δwr and Δrer variations are different they are weighted based on their standard deviation (γ_1, γ_2)⁴.

The threshold for EMPI is equal to the index median less MAD (median of absolute deviations from the median) multiplied by 3.

2) Selection of indicators and estimation of their efficiency

For indicators a single threshold is determined which is expressed in percentiles and which, if exceeded is fixed as the signal of the indicator. The threshold is calculated as the ratio of the maximum number of possible signals to the overall number of observations. Thresholds for indicators are calculated for the period covering Jan 1997 – Dec 2007.

The indicator’s efficiency is assessed by its signals inside and outside the “signaling window”. The “signaling window” represents a pre-crisis 12-month period. An indicator’s signal is considered as “good” if it was made in the pre-crisis period, however, if the signal was made outside the “signal band” it is regarded as “noise”.

Based on the matrix parameters were computed that determine the indicator’s efficiency. The main criterion in defining an indicator as “leading” is the “noise-to-signal” ratio of less than one. Based on the main criteria 10 indicators have been selected as the “leading”:

1) real exchange rate (the least absolute deviations from the trend); 2) oil price (12 months growth rate); 3) credits to the economy to GDP; 4) current account to GDP; 5) gross external debt to GDP; 6) real interest rate; 7) money supply (12 months growth rate)); 8) differential of rates on loans and deposits; 9) exports of goods and services (12 months growth rate)); 10) real GDP (12 months growth rate)).

3) Composite indicator construction

Composite indicators are built by weighting signals of 10 selected individual leading indicators. Composite indicators were built for the period from January 1997 through December 2007. The composite vulnerability indicator mentioned in the general conclusions section represents an indicator weighted by the inverse value of the noise-signal ratio of each indicator.

¹ Original methods were presented in the Kazakhstan Financial Stability Report for 2007 in Section IV. Special Research in the Area of Financial Stability. New methods have been developed as part of the joint project, “Designing the system for forecasting the development of the economy and early warning of crises”, jointly with the IFO, Munich (Germany).

² Kaminsky, G., Lizondo, S., Reinhart, C. M. (1998), Leading Indicators of Currency Crisis, IMF Staff Papers

³ ($\Delta rer = (\ln rer_t - \ln rer_{t-1}) * 100$), ($\Delta wr = (\ln wr_t - \ln wr_{t-1}) * 100$)

⁴ $\gamma_1 = \sqrt{\text{var}(\Delta rer) / [\sqrt{\text{var}(\Delta wr)} + \sqrt{\text{var}(\Delta rer)}]}$, $\gamma_2 = \sqrt{\text{var}(\Delta wr) / [\sqrt{\text{var}(\Delta wr)} + \sqrt{\text{var}(\Delta rer)}]}$