IV. Special Research in Financial Stability

8. Monitoring the Financial Stability of Banking Sector with *Aggregated Financial Stability Index*

An Aggregated Financial Stability Index of the banking sector was worked out to assess the degree of financial stability through the analysis of indicators' system that reflect the specific risks of the Kazakhstani banking system. Development in aggregated index parameters witnesses about a decline in the financial stability of banks, which is mainly caused by the assets quality deterioration.

The latest events at the global financial markets have required creation of flexible analytical tools to assess the strengths and reveal the weaknesses of the banking sector for further supervisory focused monitoring including prudential one. In response the Board of FSA adopted in April 2008 a new edition of the Action Plan in case of increased risks at the financial market. The Plan stipulated assessment of the financial stability of financial organizations and parameters of their stable functioning, and a complex of preventive measures to settle down problems of financial organizations (Contingency Planning).

Much scope in the Plan is given to assessment of the stability of the banking sector as the largest segment of the financial market which development has a direct impact on the financial sector as a whole. Within the Plan a summary aggregated financial stability index is constructed on the basis of the specifically created system of indicators defining the current financial state and stability of STB[66].

In order to construct the aggregated financial stability index there were selected specific indicators that reflect risks characterized the domestic banking system. The system of indicators is applied to analyze the financial stability, which is divided into the following groups:

1) Capitalization indicators;
2) Loan portfolio quality indicators;
3) Credit risk indicators;
4) Market risk indicators;
5) Profitability indicators;
6) Liquidity risk indicators.

Each indicator, excluding prudential indicators[67], gets the threshold parameter on the basis of statistical methods and international practice, achieving and/or exceeding of which indicates an increase, or presence of certain risks. This could require from the supervisory body undertaking of necessary measures to restrict or eliminate risks. The correlation analysis was carried out between indicators to assess the quality of them. In order to identify the indicators' thresholds analysis of the indicators for the period of 01.01.2003-01.04.2008 (quarterly) which comprised of 21 time series of variables was provided. The indicators threshold values are simple average value corrected on standard deviation in the range of 1.5-3 frequency rate. The formats of indicators calculation are ratio and growth rates. Each indicator gets its rating and weight within the range of 1-4 and 1-2 respectively (Table 1). The summary result per group is defined as weighted average value of indicators in the group. The aggregated financial stability index is calculated as a simple average of values of groups of indicators.

[66] AFSI calculation methodology was developed by FSA and further worked out with the assistance of Financial Stability Division of NBRK and Ifo Institute for Economic Research at the University of Munich, on the basis of IMF research and practice of the European System of Central Banks, RF, and etc.
[67] Critical thresholds is based on the normative values established by authorized body

Table 1

The Indicators System of Aggregated Financial Stability Index of Banking Sector (AFSI)

№	Indicator description	Threshold value, %				Weight
		Score 1	Score 2	Score 3	Score 4	
I. Capitalization Indicators						
.	*Capital adequacy ratio k1*	> 10	10 – 9.5	9.5-6.5	< 6.5	2
.	*Capital adequacy ratio k2*	> 14	14 – 13	13 –12.5	< 12.5	2
II. Loan portfolio quality indicators						
.	*Ratio of bad loans(loss) to loan portfolio*	< 2	2 – 3	3 – 4	> 4	1
.	*Ratio of loan provisions to loan portfolio*	< 4	4 – 5	5 – 7	> 7	2
.	*Increase in overdue loan indebtedness*[68] *(debt and interest))*	< 9	9 – 14.5	14.5 – 20	> 20	2
.	*Ratio of loans with overdue outstanding debt >90 days to loan portfolio* [69]	< 2	2 – 4.5	4.5 – 7	> 7	2
.	*Ratio of non-performing loans to total assets*	< 2	2 – 3	3 – 5	> 5	2
.	*Ratio of non-performing loans to loan portfolio*	< 4	4 – 6	6 – 8	> 8	2
III. Credit risk indicators						
.	*Ratio of loans to non-residents to loan portfolio*	≤ 10	10 – 15	15 – 20	> 20	1
.	*Ratio of loans collaterazed by real estate to loan portfolio*	≤ 20	20 – 30	30 – 40	> 40	2
.	*Ratio of loans to construction sector to total loans to economy*	≤ 15	15 – 25	25 – 35	> 35	2
IV. Market risk indicators						
.	*Ratio of loans in foreign currency to loan portfolio*	≤ 35	35 – 40	40 – 45	> 45	2
.	*Ratio of liabilities sensitive to interest rate fluctuations to equity capital (interest rate position)*	< 100	100 – 110	110 – 120	> 120	2
.	*Ratio of FX net-position to equity capital*	< 15	15 – 20	20 – 25	> 25	1
V. Efficiency indicators						
.	ROA	≥ 3	3 – 2.5	2.5 – 2	< 2	1
.	ROE	≥ 25	25 – 20	20 – 15	< 15	1
VI. Liquidity indicators						
.	*Current liquidity ratio k4**	≥ 50	50 – 40	40 – 30	< 30	1
.	*Short-term liquidity ratio k5**	≥ 70	70 – 60	60 – 50	< 50	1
.	*Quick liquidity ratio k4-1 (<7 days)*	≥ 200	200 – 150	150 – 100	< 100	1
.	*Quick liquidity ratio k4-2 (<1 month)*	≥ 190	190 – 140	140 – 90	< 90	1
.	*Quick liquidity ratio k4-3 (<3 months)*	≥ 180	180 – 130	130 – 80	< 80	1
.	*Ratio of total loans to deposits of legal entities and individuals (excluding interbank operations and SPV deposits)*	≤ 125	125 – 175	175 – 225	> 225	2
.	*Ratio of liabilities to non-residents (excluding deposits of SPV) to total liabilities*	≤ 15	15 – 25	25 – 35	> 35	2
.	*Ratio of liquid assets to total assets*	≥ 20	20 – 17	17 – 14	< 14	1

** measured up to 01.07.2008, as of 01.07.2008 new liquidity ratios were introduced*
Source: FSA

The banking sector stability is rated as follows: with the aggregated index parameter within 1-1.5 the financial stability of banks is classified as stable; within 1.5-2 - normal (medium level of

[68] The index was measured up to 01.07.2008
[69] Included into the model due to the new report form as of 01.07.2008

risks); within 2-2.5 - satisfactory (with the upward trend in risk level); within 2.5-3 - satisfactory (with an excessively high level of risks); within 3-3.5 - unstable; and above 3.5 as critical.

According to the results of the research, the loan portfolio quality and profitability indicators are most sensitive to AFSI as result of increase in the level of reservation caused by a deteriorating of the credit portfolio quality that has a direct impact on the profitability of the banking sector.

The profitability index has changed since April 2008 from 3.0 to 4.0, and the index of loan portfolio quality from 2.2 to 3.0. The dynamics of the indices of capitalization, credit and market risks remains stable.

The stability of the capitalization index is specified by the fact that the ratios of capital adequacy of Kazakhstani banks surpass normative requirements established by the authorized body. It is evidence of a safety factor that has been generated through implementation of measures on tightening the requirements to capitalization in relation to risks resulting from an active inflow of external loans in periods of a rapid growth of the banking system.

Thus, the stability of credit and market risks indicators is connected with substantial slowdown of the growth rates of credits to economy under the deficiency of liquidity in the banking sector. On the contrary , the index of liquidity is volatile enough which is adequate to the current conditions as a whole (Figure 1).

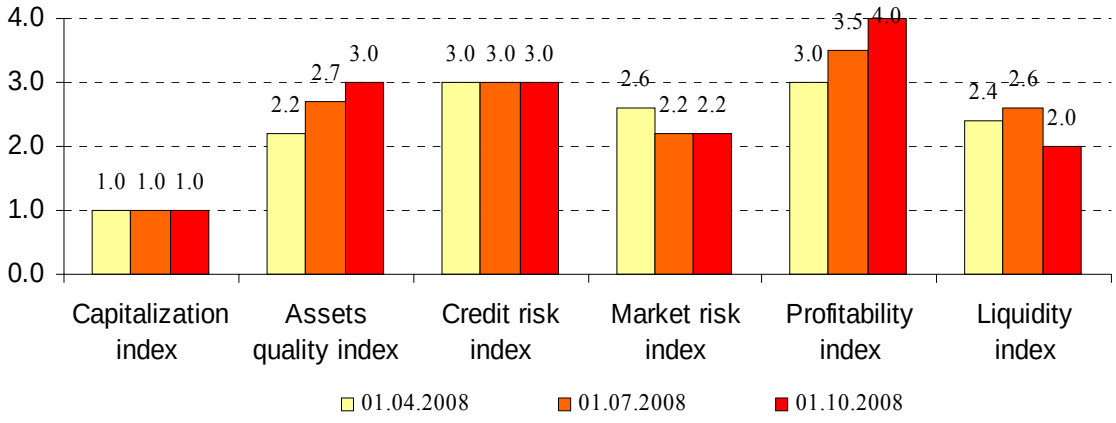
According to the assessment results the quality of the loan portfolio causes particular concern as it impacts the banking sector profitability, which will obviously influence the level of capitalization of the banking sector in case of tendency intensification (Figure 2).

The index dynamics argues the decline in the level of the financial stability of banks under the impact of quality of bank assets. As of 01.10.2008 the AFSI value made up 2.53, having risen in comparison with the previous month by 0.05 points. However, AFSI index value dropped by 0.15 points in comparison with the end of the first quarter. Thus, the financial stability of Kazakhstani banks is characterized as satisfactory with an excessively high level of risks (4th rating of 6) (Figure 3).

In order to identify vulnerability of banks to various risks the aggregated index system requires an expansion of the list of indicators. The spectrum of risks and their display can be rather diverse. These issues are the subject of enhance this tool with aim to increase its accuracy and efficiency for the supervision purposes.

Figure 1

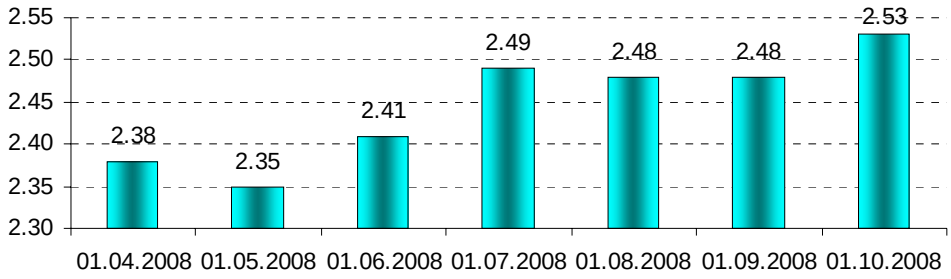
Dynamics in Financial Stability Indices



Source: FSA

Figure 2

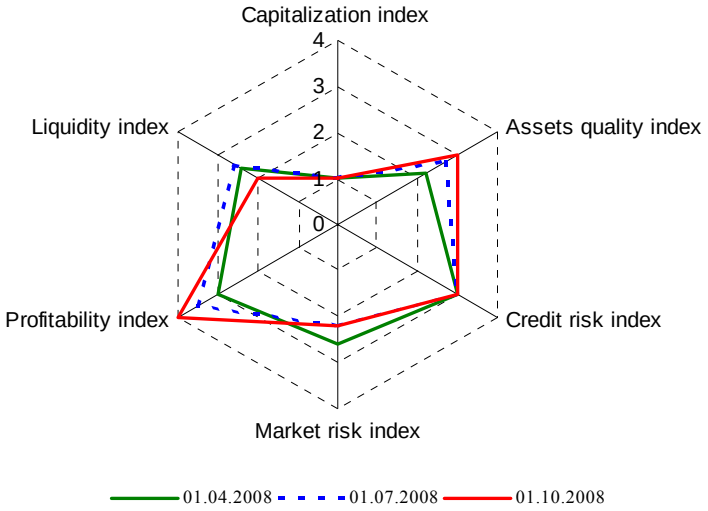
Dynamics in Aggregated Financial Stability Index



Source: FSA

Figure 3

Mapping of AFSI at the Risk Map**



***N.B. The higher is the index, the lower is the financial stability level and vice versa.*
Source: FSA

9. *Banking Sector Stability Assessment with the Z-score*[70]

Stable performance of the financial sector is a main aspect of the sustainable economic development of the country. The global financial crisis revealed a numerous vulnerability factors in the financial system of Kazakhstan, and has considerably raised risks of its functioning. In these conditions studying of the primary risks would allow to reveal the most significant factors necessary for maintenance of the stable performance of financial institutions and a financial system of the country as a whole.

Due to the raised importance of issues of analyses and assessment of financial stability new approaches and methodological tools are being applied for the purpose of more profound studying and revealing of specific risks for STB. One of these approaches is z-score method, measuring risks of the banking system based on the bank by bank data. Based on econometric analyses the method defines the types of risks and shocks likely to affect the financial system of the country as a whole.

Z-score Methodology

Z-score has lately become an especially popular method to assess bank stability due to the fact that it has a direct relation with an estimation of probability of bank insolvency. Z-score methodology is mainly applied to analyse the stability of a bank through a variety of financial risks and economic factors that can affect financial institution.

Generally z-score can be considered as an indicator of financial institution stability, or as measure of «distance-to-default». The advantage of the indicator is that its calculation includes the components related to the bank solvency and statistically represents a number of standard deviations when the decline of profitability, or a risk of bank insolvency, can result in the capital exhaustion. Z-score formula is as follows:

$$z = \frac{(\mu + k)}{\delta}$$

where μ is an average of return on assets (*ROA)* for the period, k - ratio of capital to assets and δ - standard deviation of *ROA* for the period, which is also viewed as profitability volatility index. High z-score indicates a larger distance to the exhaustion of the capital and a lower probability of the bank insolvency. Consequently, the higher is z-score, the more stable is the bank.

Initially the most popular version of z-score was distance-to-default (DD) index in which calculation the data of bank shares prices was used in order to assess the effect of volatility on the bank capital. Later however, in order to cover all the financial institutions, reported data of commercial banks have started to apply as the data on commercial prices of equities of most of the banks, particularly of small and medium, were unavailable.

The main idea of the z-score is that this method allows on a basis of econometric analyses to estimate the correlation of the bank stability, various financial risks and factors of the external environment.

In practice z-score methodology has found the wide application in various areas of the analysis of risks of financial institutions. For example, Heiko Hesse and Martin Cihak [71] used this formula in their research in order to forecast the role of cooperative banks in achieving the financial stability. In their research they analyzed above 16 thousand cooperative, savings and commercial banks in 29 developed and developing countries. Thorsen Beck and Luc Laeven, in their turn, applied z-score to predict bankruptcy of commercial banks with the Deposit Guarantee Institution operating within the system. Analyzing the data on 1700 banks of 57 various countries, authors have made the conclusion that the most stable are the banks in those countries where there is an established Deposit Guarantee Institution authorized to capitalize a bankrupt bank and except its

[70] Z-score Financial Analysis Policy is worked out by the Financial Stability Division in NBK within the framework of the joint project with the Ifo Institute for Economic Research at the University of Munich

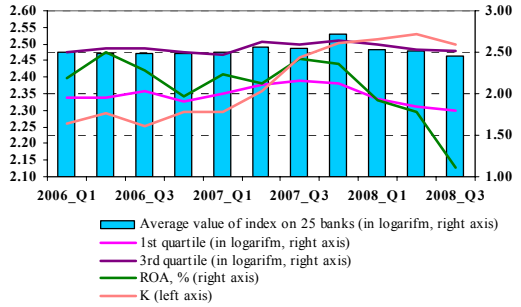
[71] Heiko Hesse, Martin Cihak, «Cooperative banks and financial stability», 2006.

membership in system of warranting[72]. Finally, the IMF experience in assessing and decomposing the risks in the Eastern European countries[73] and Deutsche Bundesbank's experience have been studied to estimate the possibility of applying z-score methodology for Kazakhstan's banks. Thus, after studying experience of creation of system of an assessing the banks stability, z-score methodology has been applied for the purpose of an estimation of the level of stability of Kazakhstan's STB.

Practical Application of z-score for Kazakhstani Banks

Figure 1

Z-score Index for Kazakhstani Banking System



The values of an index received as a result of calculations of z-score indicates that at present moment the level of stability in the banking sector of Kazakhstan have been gradually decreases. This slowdown marked from the beginning of 2008 has been directly affected by the decline of the profitability of banks.

In order to assess the level of the Kazakhstani banking system stability the z-score was applied to reveal the financial risks and economic conditions affecting the vulnerability of banks in Kazakhstan. For the z-score index the regression model was estimated on the basis of panel data on micro-prudential indicators and economic variables of the following type:

$$Z\text{–}index_{it} = \alpha + \beta_1(Size_{it}) + \beta_2(fod_i) + \beta_{Br}BR_{it-1} + \beta_M Mac_{it-1} + \varepsilon_{it}$$ [74],

where i is an individual bank and t is a period.

In the presented model variables are grouped by various factors of influence: the size of bank (Size), foreign participation in bank (fod), variables specific to bank activity (BR) and variables of macroeconomic (Mac) environment.

All z-score components and bank indicators values were calculated for each STB on a quarterly basis for the period of 1st quarter of 2004 to 3rd quarter of 2008 with FSA data. Macroeconomic indicators were calculated for the same period according to NBRK and SARK data.

Z-scores analysis covers the period of gradual development of the Kazakhstan banks, the period of rapid growth and high incomes, and also the period of activity slowdown due to development of crisis of liquidity in August, 2007. Within the analysis the data of twenty-five banks out of thirty-six second tier banks of Kazakhstan have been used due to their sufficiency.

The most important stage in working out of the model is selecting the most significant indicators. The choice of risk indicators was based on empirical study and indicators specific to the development of the banking sector in Kazakhstan. Thus, from all indicators it is much more difficult to define a set of the macroeconomic indicators, capable to show what factors of an environment can affect decrease in stability of bank and moreover what external factor can represent a potential shock for loss of stability of bank.

In order to construct the z-score model there was compiled a list of independent variables grouped into indicators of the bank's current situation, bank risks and macroeconomic variables.

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[72] Thorsen Beck, Luc Laeven, «Resolution of failed banks by deposit insurers»

[73] Andrea M. Maechler, Srobona Mitra, DeLisle Worrell, «Decomposing Financial Risks and Vulnerabilities in Eastern Europe», IMF Working paper, October 2007.

[74] All variables, incl. a dependent variable, are in natural logarithms, aimed at possibility to read ratios in the form of elasticity. The model is evaluated with the panel OLS, and the variable vectors of the banking sector risks and the macroeconomic parameters are presented in the lag term to estimate the influence of the previous period trends.

1) *Indicators of the bank current situation: the size of the bank and the foreign participation.*

The banking system of Kazakhstan is characterized by high degree of concentration of the largest 6 banks whose share in total assets of the banking system is from 8 to 24%. The G6 banks define the main policy of the financial sector development in the country, and play an active role in other sectors of the financial system. A priori a sign of *Size* variable is not defined as the concentration can have both a stabilizing effect and bear a risk for the stability in the banking sector as the insolvency of a large bank can lead to the deterioration in the balance of another as a result of presence of positions under mutual liabilities.

Similarly, foreign participation can have a double effect. On the one hand, this process has many advantages and can positively impact the development and improvement of a bank performance. In case of excessive turbulence a foreign investor can also inject extra capital to support the bank and protect it from losses. Another positive factor can be considered as a conservative credit policy which does not imply aggressive strategies. On the other hand, the presence of a foreign capital may be characterized by certain restricted factors, e.g. customer service selectivity, restricted dynamics of growth and low profitability.

Table 1

Bank Current Situation Indicators

№	Variable	Format
1	Bank size	Share of the bank in total assets of the banking system
2	Foreign participation	Dummy variable equals 1 if a bank with foreign participation (according to FSA), and 0 in otherwise

2) *Variables reflecting bank risks.*

The indicators reflecting the following main financial risks for bank have been chosen: credit risk, risk of liquidity, market risk and risk of profitability decline.

Bank activity on lending to the economy in case of balanced credit policy of financial institutions is the basic source of incomes of bank. Theoretically influence of growth of economy lending on z-score should be positive. However, galloping growth rates of banks' lending of economy bear the threat of a high income volatility that has negative impact on the stability of financial institutions, and predetermine the negative sign of the coefficient. Favorable conditions of external financing have encouraged the Kazakhstan banks to widely use of external resources for financing the domestic economy. As a result it has led to growth of lending to economy at the average rate of 65 % per year for the period of 2000-2007. As a result the credit boom made the credit risk as one of the main risks for a sustainable bank development.

For a bank sustainable development an adequate level of liquid assets for a timely coverage of the current liabilities is not less important and a priori expected sign is positive. Despite it, excess liquidity can have negative impact due to inefficient cash flow management or absence of enough liquid secondary market, which further can result in structural problems of the bank's balance sheet and directly causes the decline of the z–score index.

The market risk is also essential for the bank profitability. High exchange rate volatility becomes a significant vulnerability factor in case of bank's sizeable negative open foreign exchange position. However the effective policy of risk management and monitoring of market risks can mitigate negative effect of such fluctuations of the exchange rate.

For the purpose of an estimation of influence of banking activity in lending and deposits attraction the ratio of interest income to gross income has been included in system of indicators of model. The indicator can be directly affected by the ratio of the capital to assets of the bank. The influence of the parameter on the z-score index is expected as positive, as at a given level of assets a higher capital volume leads to decrease in demand for borrowed funds, thereby, reducing interest expenses and increasing net interest income.

Table 2

Indicators Reflecting Bank Risks

№	Variable	Format
1	Credits to economy	Loan portfolio growth rate to the relevant period of the previous year
2	Non-performing loans	Share of loans classified as non-performing in loan portfolio
3	Current liquidity	Ratio of high liquid assets to short-term liabilities
4	Exchange rate volatility	Standard deviation in daily exchange rate fluctuations according to KASE
5	Provisions for NPL	Share of provisions for non-performing loans to gross income
6	Interest income	Ratio of net interest income to gross income

3) Macroeconomic indicators

The impact of the macroeconomic environment on the stable functioning of bank is various. If the effect of bank risks variables can be in advance defined by virtue of understanding the nature of threat from the risks, the influence of economic factors on bank stability is difficult to define in advance. The macroeconomic environment creates conditions and tendencies for further development of banks and can play a stabilizing role for increase of bank stability and vice versa. Originally, a wider list of indicators was formed for the purpose of coverage of various factors.

Table 3

Macroeconomic Indicators

№	Variable	Format
1	Financial Depth	Ratio of credits to economy to GDP
2	Inflation	CPI (to the relevant period of the previous year)
3	International interest rates	LIBOR 3 months in USD
4	Debt burden	Share of STB in gross external debt

Statistical Parameters of Z-score Index

Influence of independent variables on the z-score index was estimated with the regression model. The z-score estimation has represented the following results for all (25) banks of Kazakhstan. Moreover, from the point of view of influence of selected variables on a z-score index separately the equation for large and medium banks only which attracted external loans more actively in comparison with other banks has been constructed.

Table 4

Statistical Parameters

Variables	Statistical parameters in all banks			Statistical parameters in 11 banks		
	Equation 1	Equation 2	Equation 3	Equation 1	Equation 2	Equation 3
C	1.022** (2.343)	1.449* (3.865)	1.478* (4.430)	2.674* (6.98)	3.193* (10.04)	2.673* (8.541)
Bank size	-0.070* (-4.305)	-0.070* (-4.307)	-0.058* (-3.976)	0.095* (5.449)	0.093* (5.403)	0.0816* (4.330)
Foreign participation	-0.178* (-3.695)	-0.177* (-3.65)	-0.220* (-4.568)	-0.067+ (-1.71)	-0.067+ (-1.680)	-0.065+ (-1.666)
Credits to economy	-0.096* (-3.033)	-0.096* (-3.024)		-0.097* (-3.807)	-0.099* (-3.772)	
Liquidity	0.218* (4.177)	0.220* (4.127)	0.283* (5.458)	-0.062 (-1.603)	-0.063+ (-1.665)	-0.028 (-0.830)
Interest income	0.144** (2.527)	0.145** (2.542)	0.105** (1.974)	-0.102+ (-1.791)	-0.094+ (-1.667)	-0.098 (-1.539)
Provision for NPL	0.030 (1.593)	0.032+ (1.703)		-0.100* (-3.618)	-0.094* (-3.259)	
Financial Depth	0.226+ (1.626)	0.444+ (1.556)	0.259 (0.787)	0.413* (3.327)	0.584** (2.225)	0.601+ (2.167)
International interest rates	-0.093 (-1.323)			-0.135+ (-2.235)		
Inflation	-0.172 (-1.564)	-0.136 (-1.159)	-0.125 (-1.056)	-0.240+ (-1.90)	-0.215+ (-1.650)	-0.190+ (-1.857)
Debt burden		-0.380 (-1.460)	-0.313 (-1.057)		-0.381+ (-1.645)	-0.471+ (-1.880)
Exchange rate volatility		0.048+ (1.198)	0.049 (1.120)		0.032 (0.984)	0.038 (1.106)
Non-performing loans			0.021 (1.26)			-0.077+ (-1.966)
R^2	**0.345**	**0.348**	**0.269**	**0.207**	**0.201**	**0.164**

*N.B. statistical significance at 1%- *, statistical significance at 5% -**, statistical significance at 10%- +. t-statistics is in brackets.*

For z-score some specifications of the equations have been estimated for the analysis of the various tendencies influencing stability of bank. For the purpose of an assessment and verifying the significance of the risk related to the accumulated debt burden in addition the alternatively equation has been estimated which supported the hypothesis that both the accumulated debt burden of the banking sector and its service costs have negative impact on bank stability. Another equation was estimated in order to verify significance of loan portfolio quality indicator's direct impact, i.e. non-performing loans, on the z-score index.

Main Conclusion on Z-score for Banking System of Kazakhstan

Z-score results received on the basis of model have reflected the factors directly influencing stability of bank.

1) According to the z-score results the size of the bank has a significant impact on the bank stability. The summary data on all the banks defined the sign of the ratio as negative. In practice the size of bank positively impacts bank stability as a large bank due to the size of its assets has possibility to carry out multi-vector activity in order to maximize the profitability. Due to the fact that the whole range of entities was analyzed, i.e. large, medium and small banks, the negative effect of the parameter on the z-score index can be explained by a significant gap in their market share that has created different conditions for their development. Besides, each type of banks has access to different sources of financing and has different dynamics of growth. Thus, estimating model on z-score based on the data of large and medium banks, it is possible to see that the given variable has changed a sign towards positive value. This can be explained by the fact that within large and medium banks only more possibilities exist for stable and high profitability depending on a market share.

The variable of the banks with foreign participation also showed the negative sign of the elasticity coefficient. Foreign capital participation can impose certain restrictions on potential directions of bank business, which, as a consequence, declines its opportunity in getting extra profit.

2) A number of independent variables such as growth rate of STB loan portfolio and non-performing loans were used in the model to estimate credit risk factors that affect z-score index. The results showed that the high credit growth to economy increases the vulnerability of banks to credit risk. Respectively, the indicator estimating directly the quality of banks assets –" non-performing loans" has shown the weak statistical significance and economically inconsistent sign of elasticity coefficient for all banks. In large banks, on the contrary, deteriorating quality of the loan portfolio creates additional costs for creation adequate provisions. Variability of a sign in this case indicates ambiguity in the effect of the variable on bank stability.

3) By results of model estimation the indicator of a share of interest income shows high statistical significance and has a positive sign. These indicate firmer bank stability at a greater degree of importance of the main function of financial intermediary for bank profitability. On the other hand, the negative sign for large banks can mean smaller efficiency that reduces their potential incomes as well as their higher dependence on external financing, which, consequently, results in higher interest expenses.

In its turn, reservation of funds for potential losses of banks is directly aimed at creating a "safety cushion" which has positive effect on bank stability. However creation of additional reserves negatively impacts z-score in case of large and medium banks, which is proven by the negative sign of the share of provisions in gross income. For this category of banks the creation of provisions imposes burden on the part of income which could otherwise be used to effectively expand their activity. The statistical significance of this parameter is comparatively lower than that of other parameters of bank risks.

4) Apart from the credit risk variable, the liquidity risk indicator has also shown high positive statistical significance for the z-score index, which was corroborated by the liquidity crisis in August 2007. Taking into account the high importance of the liquidity risk it is necessary to understand that increase in volumes of liquid assets to cover current liabilities is inefficient as it

incurs direct costs of the lost benefits. More significant for strengthening of bank positions is the effective policy on liquid asset management taking into consideration the volume of short-term liabilities, as result for 11 banks shows.

5) Influence of a market risk on bank stability is ambiguous due to weak statistical significance and the positive sign. It is necessary to notice that due to negative consequences of liquidity crisis most banks have started to conduct a conservative policy concerning open positions, including maintenance of low gap in a foreign currency.

6) Particularly interesting is the result of analysis on macroeconomic indicators. The economic variables in the model were such parameters as real GDP growth rate, financial depth (ratio of credits to economy to GDP), indicator of economic openness (ratio of trade turnover to GDP), indicator of financial openness (ratio of external assets and liabilities to GDP), deposits of STB, real estate price index, share of STB liabilities in gross external debt, oil prices, inflation, international interest rates and the Herfindahl-Hirschman concentration index. On the basis of the model construction a number of most significant indicators were selected for the z-score. First of all, it is the financial depth. This parameter is positively related to the z-index as favorable environment for business development reduces the probability of any major risks bearing the threat of destabilization in the financial sector. In its turn, the high rate of inflation as an assessment indicator of the monetary policy efficiency causes depreciation of assets in real terms. The international interest rates are presented in the system as an indicator reflecting the influence of the external world. In the model the coefficient of this indicator is characterized by the negative value. Increase in the international interest rates deepens vulnerability of banks and reduces their ability to refinance the accumulated external liabilities. At the same time the indicator presents the greatest significance directly for the large and medium banks actively participated in attraction of foreign capital.

Conclusion

As a whole, the approach on a basis of z-score in the area of bank stability assessment is a new direction. That is why it is being continuously improved and finds a wider application in various areas of vulnerability analysis. Initially obtained results have indicated most significance of credit and liquidity risks for banks of the Kazakhstan. Also analysis based on bank ranging has revealed that risk profile of large, medium and small banks considerably differs.

The analysis has been the first attempt to study the influence of certain types of risks on stability in the banking sector as a whole and each bank in particular. It is necessary to notice that especial importance for the z-score plays both quality of the data, and their sufficiency. In spite of the fact that the analyzed period covers the three development stages of the banking sector (growth, peak and slowdown), the historical times series are short for construction of the model which could be completely adequate for its tasks. However, the results give an accurate picture of banks vulnerability to particular risks.

Further application of the z-score analysis has a number of prospects, such as studying of bank vulnerability at level of more specific indicators on the basis of banks' balance sheets, and analysis of transformation of various shocks through the factors of vulnerability of individual bank, as one of alternative approaches to bank stress-testing.

10. Qualitative Features of Credit Market During Financial Turbulences

Recent turbulences on global financial markets have raised the importance of qualitative features analysis, that is demand on bank loans and supply of credit resources on the credit market. In this respect an all-important assessment instrument of the lending market is conducting of bank lending surveys, which is a common practice in foreign central banks. Such surveys focus on obtaining essential data for analysis of the qualitative features of the market, financial stability factors, and they have influence on decision-making in monetary policy and anticipations.

1. Methodology of Bank Lending Survey

Since July 2007, the National Bank of the Republic of Kazakhstan conducts bank lending survey on a regular basis[75] in order to improve its system of financial stability monitoring.

The main focus of the survey is to single out factors of bank credit demand and supply, bank risk management assessment, evaluation of price and non-price parameters impact on the bank pricing policy, and credit market expectations. Regular monitoring provides data for the analytical survey and a comprehensive assessment of bank interrelations. Qualitative parameters enrich and, in certain cases, explain quantitative data for a particular time period.

The National Bank questionnaire is a set of questions divided into three parts (1) Bank Lending Market; (2) Risk Assessment Map; (3) Data and Information for Qualitative Assessment of Risks and Trends.

Questions in *Bank Lending Market* part are divided into subparts of *corporate sector* and *households* by bank loan segments and relate to current assessment of demand and supply, loan portfolio quality assessment and anticipations.

The questions in *Risk Assessment Map* part relate to banks' activity in terms of risk vulnerability, and sources of additional funding.

The third part of the questionnaire aims at obtaining qualitative data from banks to be used in other researches concerning banks' activity, e.g. contagion effect in interbank market.

Survey results are calculated and analyzed through 4 indicators:

$$\text{1. Percentage change} = \frac{\text{Number of responded banks}}{\text{Total number of interviewed banks}}$$

2. Net percentage change (NPC) = (% of respondents selecting an increase/easing in the value) – (% of respondents selecting a decrease/tightening in the value)

*3. Diffusion Index[76] (DI) = (% of respondents selecting «eased considerably» + % of respondents selecting «eased slightly»*0.5) - (% of respondents selecting «tightened considerably» + % of respondents selecting «tightened slightly»*0.5).*

4. In respect of demand and supply factors (lending policy) mean values are calculated per each factor. Mean values are calculated as an arithmetical average without taking into account specific weights of banks.

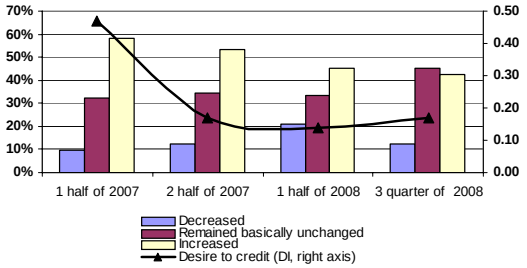
[75] At present the survey is carried out on a quarterly basis in the form of an interview with bank managers and specialists.

[76] The index value fluctuates between -1 and +1. If the value is 0, the respondents' assessment of the current situation has not changed in comparison with the previous survey. If their assessment changes in either direction, this affects the results, which reflects in their increase/decrease, and easing/tightening respectively.

2. Change in Qualitative Parameters of Credit Market

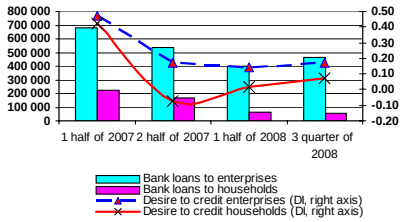
Conducting bank lending surveys since July 2007 with accumulation of historical data allows analyzing the situation in credit market from the position of key parameters development. Thus, ***the share of banks that observed high demand[77] from non-financial organizations in the mid-2007 gradually decreased during subsequent periods together with desire of banks to credit their corporate clients*** (Figure 1). As banks started having difficulties with foreign funding, a marked downfall in the *desire to credit* had happened. The large banks were affected most of all, G5 in particular, which to a greater extent depend on foreign funds and their share in the bank loan market exceeds 70%.

Figure 1
Changes in Demand for Bank Loans, % of respondents (corporate sector)



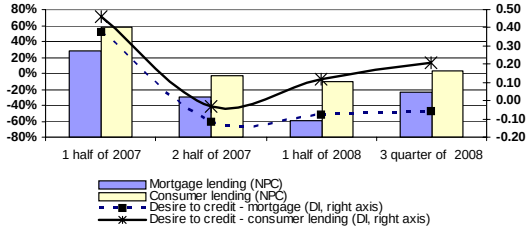
Drop in the desire to credit directly resulted in sudden decrease of bank lending to corporate and private sectors, mostly in the segment of bank loans to households (Figure 2). Such downswing was mainly caused by tightening of price and non-price conditions of crediting. Tightening of credit policy was also affected by the undertaken regulatory measures within prudential supervision, and re-evaluation of bank risks in real estate, building sector and mortgage lending.

Figure 2
Bank Loans
(monthly mean volume for a period, mln. KZT)



As it was mentioned above, the crisis affected the lending to households. Similar negative downward trend of demand for loans from the households sector and banks' desire to credit was observed in mortgage and consumer lending during the period of July 2007 - July 2008 (Figure 3).

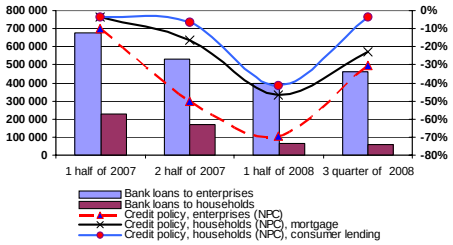
Figure 3
Changes in Demand for Bank Loans (households)



However, a restoration of *desire to credit* has been witnessed in 2008, primarily in consumer lending segment. ***The consumer lending is the most flexible and adaptable segment to significant changes in economic situation.***

During the period prior to sub-prime crisis, most banks rated the risks affecting their activity in the order of significance that is credit risk, liquidity risk, foreign currency risk, interest risk and operational risk. Remarkably, over all periods of the survey this Risk Map has not changed much. Credit risk is the most crucial for banks due to deterioration of loan portfolios.

Figure 4
Influence of Changes in Credit Policy on Volume of Crediting
(monthly mean volume for a period, mln. KZT)



With increase of credit risk significance for banks, trends towards tightening of credit policy and crediting conditions directly affected the volume of lending to economy and households (Figure 4). However, some industries (especially trade and manufacturing industry) saw an increased demand for working capital. In the 3rd quarter of 2008 some banks

[77] The demand refers to all applications for bank loans, including refusals.

preferred to keep their credit policy unchanged, while other banks eased it slightly, as in their opinion the threshold of tightening had been achieved.

Since August 2007 the banking system continued to operate under limited sources of funding, which affected the lending to the real economy and resulted in limited potential for refinancing the indebtedness to banks, proving the systemic nature of the crisis.

During 9 months of 2008 there was a growth of past-due loans, particularly of legal entities, along with an increase in collection of collateral required (Figure 5). It has less affected those legal entities, where the main share of past-due loans was caused by higher risks of contractors' default, as banks were more willing to restructure their debts (Figure 6). Collection of collateral required from households was a consequence of payment scheme violation due to cutback in gross income and growth in debt burden caused by significant tightening of crediting conditions.

Figure 5

Past-due Loans (mln. KZT)

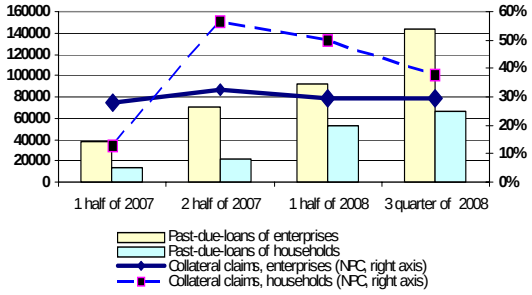
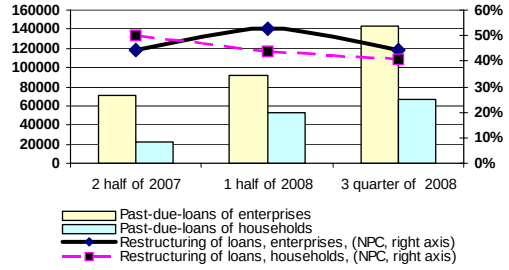


Figure 6

Restructuring of Past-due Loans (mln. KZT)

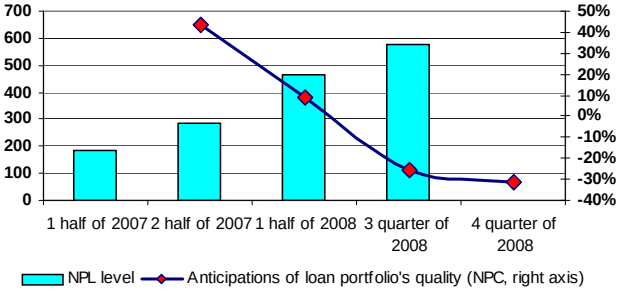


As a result of tightening of credit policy (considerable tightening is attributed to bank loan collateral requirements and profit margins on riskier loans) growth in debt burden and bank loan costs has negative effect on the quality of banks' loan portfolio, including the level of NPL[78] (Figure 7). Yet, ***operations on restructuring indebtedness assist in leveling out the negative effect of tightening of crediting conditions.***

In the background of growth of risks in the real economy, within the system of monitoring loan debtors banks try to apply financial coefficients, i.e. of liquidity, efficiency, profitability, implement tighter systems of rating, branch limits, work thoroughly with the debtors having past-due loans. Additionally to stimulating and enlarging work of internal problem credit departments, banks develop relations with collector agencies, study proposals of foreign banks on purchase of problem assets, and use of securitization mechanisms. Besides, state measures to support the banking sector are greeted by most banks. Particularly in respect of creating a special organization to clear bank balances off problem assets and increasing the amount of guaranteed deposits of the private sector.

Figure 7

NPL Level (bln. KZT, beginning of the period)



As a result, in 3rd quarter of 2008 wholesale and retail sectors of crediting faced the situation when the credit market was characterized by lack of new «good» debtors that could meet all the current requirements of the banks, and imbalance between tightening of bank credit policy and high demand in financial loans. Consequently, the main share of bank transactions in corporate sector was in financing of current clients having urgent demand in working capital. The retail sector faced further drop in demand for mortgage lending and limited demand for consumer loans, which was the result of continuous uncertainty at the capital facilities market and rise in debt burden, against the background of sliding income in the private sector.

[78] NPL (non-performing loans) include loans of 5th category, loss loans and provisions on homogeneous loans.

3. Peculiarities of Bank Reactions at Financial Market Turmoil

To understand the level of demand and degree of change in bank credit policy, it is important to define the influence factors which also help to measure the scope of credit market at a particular period. For example, a list of influence factors are singled out, among which are those that affect both the demand and the credit policy, those that are assessed by banks with the scale. The most significant factors influencing demand and credit policy are presented in tables 1-6.

Table 1

Factors Influencing Demand (corporate sector)

Factors influencing demand	July 2007	January 2008	July 2008	October 2008
	Mean values[79]			
Financing of working capital	3.81	3.81	3.50	3.64
Fixed investments	3.84	3.28	3.05	2.94
Restructuring of current liabilities	3.58	3.44	3.30	3.73
Internal financing	2.84	3.00	2.90	3.00
Loans from other banks	2.47	3.06	2.95	3.13
Changes in terms of crediting	3.55	3.00	2.70	2.73
Changes in interest rates	3.81	2.91	2.85	2.82
Changes of other crediting conditions	-	-	2.70	2.66

Table 2

Factors Influencing Demand (mortgage lending)

Factors influencing demand	July 2007	January 2008	July 2008	October 2008
	Mean values			
Real estate market outlook	3.75	2.58	1.48	2.17
Consumer confidence	3.71	2.77	1.82	2.24
Non-housing related consumer expenditure	3.11	2.55	2.00	2.38
Household savings	3.18	2.87	2.42	2.86
Loans from other banks	3.36	2.90	2.33	2.79
Changes in terms of crediting	4.00	2.87	2.24	2.76
Changes in interest rates	3.85	2.39	1.73	2.62
Changes of other conditions of crediting	-	-	2.00	2.69

Table 3

Factors Influencing Demand (consumer lending)

Factors influencing demand	July 2007	January 2008	July 2008	October 2008
	Mean values			
Consumer confidence	4.00	2.97	2.03	2.43
Spending on durable consumer goods	4.21	3.30	2.30	2.73
Household savings	2.86	2.80	2.41	2.70
Loans from other banks	3.32	2.87	2.31	2.70
Changes in terms of crediting	3.96	2.90	2.31	2.83
Changes in interest rates	3.59	2.43	2.13	2.70
Changes of other conditions of crediting	-	-	2.25	2.80

Table 4

Factors Influencing Credit Policy (corporate sector)

Factors influencing credit policy	July 2007	January 2008	July 2008	October 2008
	Mean values[80]			
Costs related to bank's capital position	2.68	2.44	2.52	2.70
Bank's liquidity position	2.55	2.19	2.30	2.64
Expectations regarding general economic activity	3.10	2.09	2.06	2.15

[79] Mean measures are calculated in accordance with the scale: 1 – significant effect on drop in demand, 2 – little effect on drop in demand, 3 – no effect on demand, 4 – little effect on rise in demand, 5 – significant effect on rise in demand.

[80] Mean measures are calculated in accordance with the scale: 1 – significant effect on tightening the credit policy, 2 – little effect on tightening the credit policy, 3 – no effect on the credit policy, 4 – little effect on alleviating the credit policy, 5 – significant effect on alleviating the credit policy.

Economy industries risk profile	2.74	1.94	2.00	2.18
Risk on the collateral demanded	2.65	1.84	1.82	2.03
Changes in share of high-risk loans in loan portfolio	-	2.16	2.09	2.34
Changes in financial status of large debtors	-	2.35	2.44	2.50

Table 5

Factors Influencing Credit Policy (mortgage lending)

Factors influencing credit policy	July 2007	January 2008	July 2008	October 2008
	Mean values			
Cost of funds and balance sheet constraints	2.96	2.23	2.33	2.90
Competition from other banks	3.54	2.84	2.67	3.13
General economic activity outlook	3.25	2.35	1.97	2.52
Real estate market outlook	3.07	2.19	1.73	2.45
Level of debtors' creditworthiness	3.21	2.58	2.03	2.61
Risk on the collateral demanded	2.68	2.06	1.64	2.45

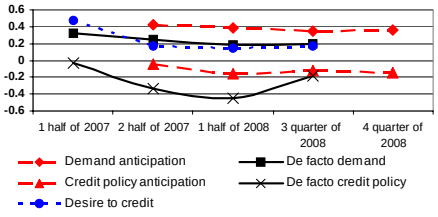
Table 6

Factors Influencing Credit Policy (consumer lending)

Factors influencing credit policy	July 2007	January 2008	July 2008	October 2008
	Mean values			
Cost of funds and balance sheet constraints	3.00	2.17	2.41	2.87
Competition from other banks	3.57	2.77	2.66	3.07
General economic activity outlook	3.21	2.27	1.91	2.47
Level of debtors' creditworthiness	3.00	2.33	1.88	2.43
Risk on the collateral demanded	2.63	2.07	1.75	2.57

Figure 8

Demand and Credit Policy Anticipations (corporate sector)



Throughout the forecast survey it has been noticed that the diffusion index revealed inconstant coincidence of bank forecasts for the next period both of demand and credit policy with the real assessment. For example, in corporate sector the gap between the forecasts and factual demand and credit policy assessment is much deeper (Figure 8). Demand forecasting, factual demand and readiness to credit correlated positively over the last 9 months. What affected the gap in credit policy of banks most is an abrupt slowdown in the activity of businesses and unfavourable situation at the financial markets. Restraint in growth of credit risks forced banks to undertake tight countermeasures, which eventually resulted in gap between forecasts and factual assessment of changes in the credit policy.

The situation with mortgage lending turned out to be more predictable (Figure 9). During drop in prices of real estate and a consequent reevaluation of collateral, the banks aimed to restrain the increase in the mortgage share of their loan portfolios by tightening the credit policy and reviewing requirements to debtors. As a result the forecasts and the factual assessment of the credit policy positively coincide to a greater extent. If the demand is analyzed, its assessment depends on the situation at the real estate market and overall economic forecasting. At the same time, the banks realize that the threshold of tightening the credit policy is achieved, and assume that it will either stay at the same level, or will be slightly softened as of beginning of 2009.

Figure 9

Demand and Credit Policy Anticipations (mortgage lending)

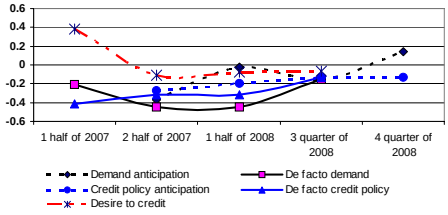
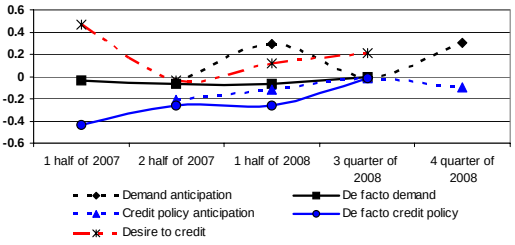


Figure 10

Demand and Credit Policy Anticipations (consumer lending)



Over the last 15 months demand for consumer lending stayed at the same level at the whole of credit market (Figure 10). Cyclic jumps in forecasts on demand can be explained by expectations of increase in consumer expenditures on durable goods. However, tight credit policy stayed at the level of the beginning of 2008, and no abrupt fluctuations are forecasted in the near future. This can be explained by banks restructuring their credit products, measures to restrain increase in the number of bad debtors, as lowering the current level of credit risk and improving the quality of loan portfolio is the immediate task of banks.

Conclusion

On the whole, when the banks found themselves in dire straights and were affected by the situation on the foreign markets, were forced to do their best to keep the liquidity and alleviate the burden on capital and protect its adequacy in the situation of deteriorating loan portfolio, it is most sensible to carry out quality survey. The results of this survey can be summarized in the following:

1. the survey allowed obtaining useful information on main parameters of the credit market;
2. the obtained information facilitated correct understanding and interpreting of quantitative data;
3. the results of research are an additional source of information both for the banks and for other concerned parties who can refer to them in their analytical surveys;
4. the current policy of surveys enhances creation of a full-scale database;
5. improvement of the general research policy and a wider use of new approaches in analysis of data provided by banks will promote its efficiency; and
6. surveying of the second tier banks contributes to carrying out similar surveys in other segments of the financial market.

11. Financial Stability in Kazakhstan: Towards the Regulatory Impact Assessment

By Max Watson, Director of Research at John Howell and Company Limited, a former Deputy Director of the IMF

Introduction

This paper conducts a preliminary review of the financial stability policies advocated and pursued by the National Bank of Kazakhstan (NBK). By extending regulatory impact assessment (RIA) to the field of financial stability, the paper seeks to break new ground. In recent years, RIA has become established as a standard technique to improve the effectiveness and efficiency of regulatory policies, including notably in the financial sector. But it has not yet been applied to issues of policy design and execution involved in financial stability work.

The policy and market developments of recent months suggest that the application of RIA in this field is now a priority. Demands for accountability are mounting with the growing calls on the public purse in the present market stress – demands which are unlikely to be limited to those countries which have already been seriously affected.

As a case study, in this context, Kazakhstan offers features that are relevant and instructive. Kazakhstan explicitly adopted policies to promote financial stability in the run-up to the present market turbulence, conscious of potentially unsustainable capital market trends. The economy experienced complex and strong pressures during the boom period of the mid-2000s; became an early casualty of the current turbulence; but has been successful to the present time in preventing any huge loss of output or employment as the boom has unwound. This reflected the fact that the authorities moved swiftly to put in place a comprehensive package of measures to contain spillover effects when the present market tensions and turbulence emerged.

Assessing financial stability frameworks

How is RIA to be extended to the field of financial stability? This is a policy function that embraces aspects of monetary, fiscal and supervisory policy, and it might at first sight appear too diffuse to merit consideration in its own right. Yet the greatest costs for the public purse arise precisely in those cases where there is a systemic failure of some kind, and the history of financial crises demonstrates how different strands of policy can contribute both in the phase of "prevention" and of "resolution."

The answer cannot be to aggregate the findings of micro impact assessments in each area of policy. The distinctive feature of financial stability is that it is an emergent feature of the economic and financial system, not of its constituent parts. And it results in important ways from the manner in which policies interact – for example, in the macro policy mix. Moreover, it can well be the secondary aspects of policy (e.g. risk management dimensions) that matter for financial stability, and these secondary characteristics may well be relegated in a standard RIA to a quite subordinate role.

To break the ice in this field, this paper does make one simplifying restriction. It focuses principally on the role of the central bank in pursuing the financial stability mandate. This seems reasonable. Financial stability is, explicitly or implicitly, a core function of the central bank. Indeed in Europe, where only half of the central banks exercise an autonomous monetary policy, it is the main common aspect of their analytical focus and operational priorities. Never has this focus of their work been more relevant or crucial than in the period since the spring of 2007.

The risk environment in Kazakhstan

From 2000 to 2007 the Kazakhstan economy was on a path of very strong economic growth, averaging over 10 percent per annum. This reflected not just the impact of higher energy prices, but also the favourable effect of transition reforms in the macroeconomic and structural areas. Among the structural measures implemented, Kazakhstan was particularly advanced in the financial sector reform, especially regarding banking reform and interest rate liberalisation. Indeed, in the banking area, Kazakhstan was acknowledged to be more comparable with the highly modernised financial systems in Eastern European members of the European Union than with CIS economies other than Russia (Table 1).

Table 1

EBRD Reform Indicators

(4+ = level of market economy)

	Banking reform & interest rate liberalisation	Securities & non- bank financial institutions	Governance & enterprise restructuring	Competition reform
Kazakhstan	3	3-	2	2
Russia	3-	3	2+	2+
Czech Rep.	4	4-	3+	3
Hungary	4	4	4-	3+
Poland	4-	4-	4-	3+
Slovakia	4-	3	4-	3+

With financial liberalisation, Kazakhstan – like other advanced transition cases – began to integrate rapidly with global financial markets. The main engine of integration lay in domestic banks, which were predominantly owned by domestic interests. At the same time, progress was relatively less advanced in the diversification of the financial system and in developing a business environment in which resources would be competitively allocated across the non-energy sectors of the economy. In other words, banking system development and integration moved on apace while some other aspects of reform advanced more slowly.

During these boom years, the banking system was highly profitable. However, financial risks were building up, and some sources of later stress were becoming ingrained. The potential sources of financial instability risk lay partly on the asset side, in the scale and speed of the rise in bank lending and asset prices. But they lay also on the liability side, in the growth of banks' external borrowing. Kazakhstan was not running a current account deficit, because the oil surplus counterbalanced the deficit in the non-oil sectors of the economy. But gross external liabilities grew rapidly, as financial integration facilitated credit expansion by the domestic banking sector.

An analytical challenge facing the authorities was that it is inherently hard to disentangle the symptoms of a warranted boom, following productivity or financial liberalisation shocks, from the symptoms of a bubble that can end in serious damage to the real sector. This challenge is all the greater in a catching-up economy, where reform shocks should trigger sizable equilibrium increases in asset prices and appreciation of the real exchange rate. Energy exporting economies, moreover, can expect to experience a trend appreciation of the real exchange rate as a result of growing natural resource revenues, and this too must be viewed (at least over the medium- and long-term) as an equilibrium phenomenon.

In the mid-years of the decade, banks and the wider business community viewed financial trends in Kazakhstan as strongly positive, reflecting favourable shocks to the economy, although there were concerns about the emergence of "Dutch Disease" during this period. The Government of the Republic of Kazakhstan was satisfied with the rapid expansion, which doubled GDP in less than a decade, but it also took action to moderate the boom by continuing fiscal transfers to the National Fund, cognisant of the risk that the natural resource boom could place excessive pressures on the economy.

The assessment of outside commentators varied in the degree of concern or questioning they expressed about trends in the financial sector. A study of bank systemic risk by FitchRatings in

2005 classified Kazakhstan quite high risk (as D on a scale of A-E) for the strength of the national banking system, but as low risk (1 on a scale of 1-3) in terms of the systemic risks posed by trends in bank lending, asset prices, and the real exchange rate.

The multilateral institutions in their assessments called for a prudent monitoring of trends in the financial sector, but did not give sharp warnings that serious stress might be only two years away. External assessments typically did not trace the macrofinancial linkages through which shocks to the economic system could cause a build-up of endogenous financial risk; through which a downward spiral in credit, asset prices and the exchange rate could emerge; or through which fiscal performance could play a role.

An exception, to some degree, was the December 2005 Oxford/FIRS study of the economy, which highlighted financial stability, rather than Dutch Disease, as a key policy concern. The grounds were that the confluence of positive shocks on the financial sector was very likely to trigger overshooting in financial markets, with macrofinancial linkages (such as unhedged exposures in the nonfinancial sector) that could result in serious damage to growth in the downswing of a boom-bust cycle.

From 2005 onwards, the management of the NBK became concerned about the progressive build-up of risks in the financial system, and the possibility of future threats to financial stability, and emphasized these issues in its interactions with other domestic agencies.

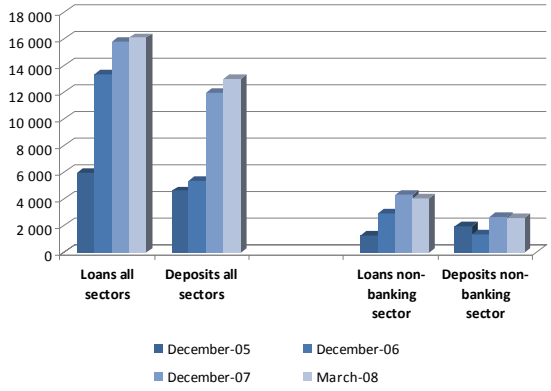
A key concern was the possibility that external borrowings by the banks could prove a trigger point for financial stress, which might then propagate through the macrofinancial linkages and feedback processes described above.

The course of events in Kazakhstan from mid-2007 onward validated this risk analysis. When risk premia in global markets began to rise as the sub-prime crisis broke, domestic banks proved vulnerable to external shocks. From mid-2007, their access to the international capital markets was sharply curtailed. Credit default swaps rose and debt ratings by international agencies were reduced. These external shocks translated into slower domestic bank lending, stalling asset prices, reduced growth, and some downward pressure on the nominal exchange rate.

Kazakhstan was more seriously affected by this initial phase of market turbulence than other former transition economies. One factor that may help explain this is that the compound positive shocks to the financial system and real economy had resulted in credit growth that was significantly more rapid than in other emerging market countries in a similar stage of financial deepening, and that this was accompanied by a very rapid growth in cross-border bank liabilities (Figure 1).

A further factor explaining the relatively early onset of liquidity stresses is that emerging market economies in Eastern Europe had wide foreign bank ownership. In the early stages of the sub-prime crisis, this moderated the impact of liquidity shocks in global markets. That partly reflected portfolio dynamics in specific banks, which happened not to be exposed to the sub-prime crisis. Indeed, recent credit flows to and within the Baltic region illustrate that a foreign banking presence did not assure invulnerability.

Figure 1.
Cross-border loans and deposits to and from Kazakhstan by BIS countries (US$ billions)



Source: Bank of International Settlements (July 2008)

It can be argued that Kazakhstan would have escaped such a severe initial liquidity shock in 2007 if there had been a larger presence of foreign banks acting as external financing conduits. This is probably correct, assuming that such banks were not also among the early victims of the sub-prime crisis. However, there is a broader and more durably relevant conclusion here: that financial sector diversification in

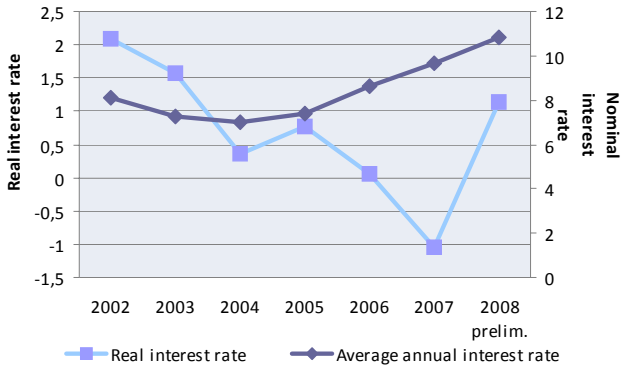
general can contribute to moderating the risks of stress by multiplying the channels through which credit can flow to the real economy.

The Policy Responses of the NBK

Official policies outside the domain of the central bank were already set on a course by the mid-years of this decade that promised to mitigate boom-bust risks in the national economy. Importantly, the government had moved to set up the National Fund in order to smooth the impact of fluctuations in natural resource revenues – thus moderating their impact on demand and deferring some receipts to benefit future generations. Moreover, financial regulation had been built up while this was a responsibility of the NBK, and it continued to be strengthened after the FSA became independent in January 2004.

As the NBK became more concerned about financial stability risks, it adopted a two-pronged strategy. The first was to tighten monetary policy progressively, and in this connection to gain political acceptance of the need to allow a steady strengthening in the nominal exchange rate. The second was to press for a broader policy response to the ongoing boom, conscious that its twin goals of monetary and financial stability both depended on strong flanking measures in the domains of fiscal policy and financial regulation.

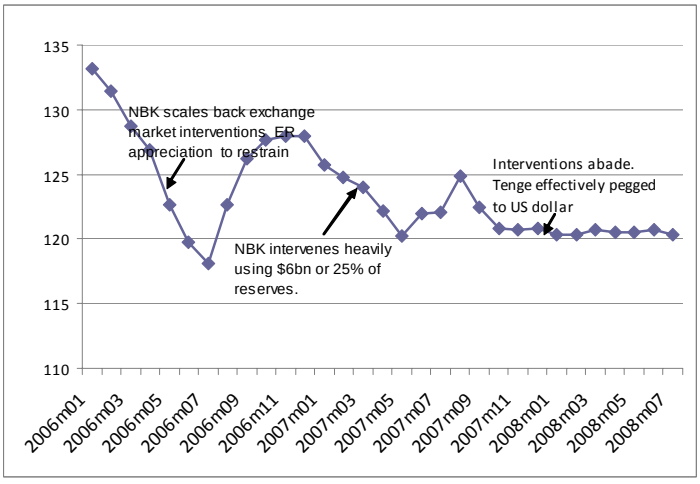
Figure 2
Evolution of nominal and real interest rates, 2002-2008



Source: IMF Article IV Consultation – Staff Report, August 20

In terms of instrument assignments, the NBK knew monetary policy had a significant role to play in mitigating stability risks. It raised interest rates, tightened liquidity requirements, and allowed sizable variability in the exchange rate – which is recognised to discourage unhedged borrowing in foreign currency by firms and households (Figures 2 and 3). Few other emerging market central banks moved on all three fronts during this period.

Figure 3.
Exchange Rate, Tenge per US$. Monthly averages, 01/2006 – 07/2008



Source: IMF International Financial Statistics, October 2008

However, given the strength of the financial boom, the NBK judged that macroeconomic policy could not be effective through monetary policy alone. It called for a tight fiscal policy to dampen pressures on consumer prices, asset prices and the real exchange rate. In 2006, it encouraged the tax-based measures adopted to slow the pace of direct external borrowing by firms.

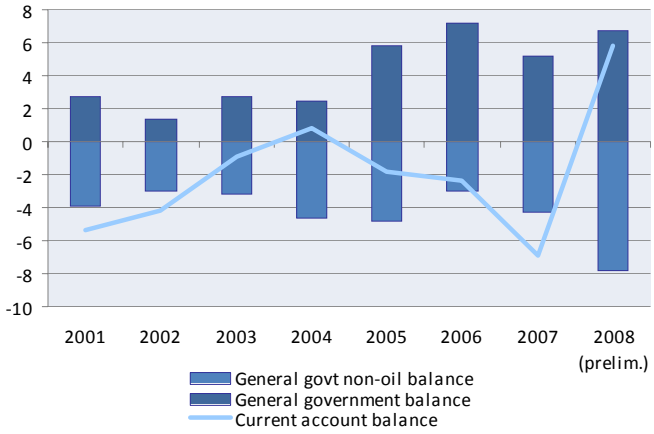
The NBK also alerted the Financial Supervisory Authority (FSA) to the strong macroprudential case for vigilance over lending and external borrowing. In Kazakhstan, unlike many other advanced and emerging market economies, this macroprudential message was both launched effectively by the central bank and acted upon by the FSA. A wave of additional regulatory measures was taken by the FSA in 2005-7.

The prudent fiscal policy pursued during these years of strong revenue boom is illustrated in Figure 4 below.

The policy mix that the NBK advocated in the closing months of 2007 (and which was largely adopted by the Government of Kazakhstan and its agencies) comprised three main elements. First, it injected liquidity generously and provided blanket support for bank deposits, since moral hazard concerns were outweighed by risks of a bank run (Figure 5). To counter moral hazard, it also sought to "bail-in" bank shareholders by seeking capital injections. Second, it kept a firm monetary stance in terms of policy rates to avoid a loss of domestic confidence and the crystallization of balance sheet risks among firms and households; indeed, nominal interest rates were raised by two percentage points during the period of stress. Third, it advised that fiscal policy should "take the strain" through a significant temporary widening of the non-oil deficit, and through specific measures to support the private sector (Figure 6).

Figure 4.

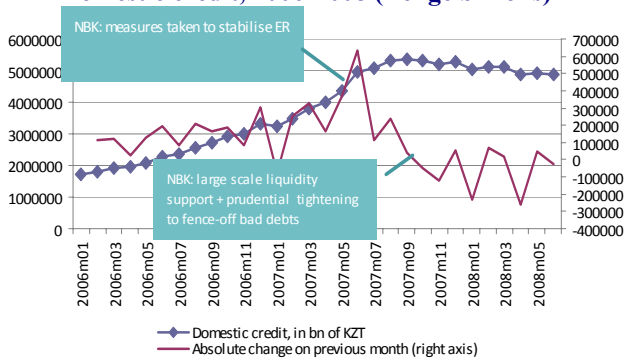
General government and current account balances, % of GDP (2001-2008)



Source: IMF Article IV Consultation

Figure 5.

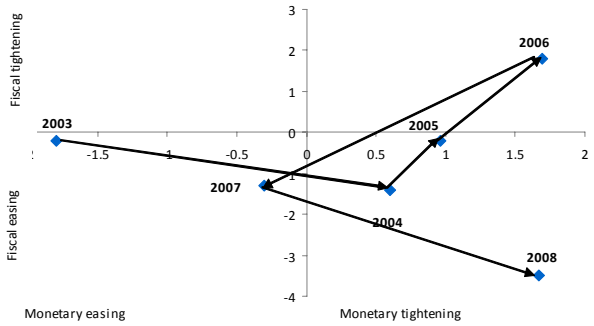
Domestic credit, 2006-2008 (Tenge billions)



Source: IMF International Financial Statistics, October 2008.

Figure 6.

Policy mix, 2003-2008



Source: NBRK, IMF, Authors' calculations. Note: Monetary policy in this chart is measured by a combined index: a sum of % change of average annual real interest rates, applied by NBRK in the respective year, (weighed at 2/3), and of % change in the average annual real effective exchange rate (weighed at 1/3). Fiscal policy is measured by % changes in the general government non-oil budget balance.

Alternative options and policy trade-offs

In implementing the RIA approach, it is important to look beyond the findings of a direct cost-benefit analysis of actually measures taken. Even where there is evidence of sizable net benefits on this basis, it is valuable to ask several additional questions:

Could stronger preventative and/or remedial action have more effectively mitigated the financial stresses in the recent episode?

Alternatively, was it indeed necessary to have recourse to official regulatory action, with its associated costs; or would moral suasion/self-regulation have sufficed?

Was a suitable mix of policy measures adopted, or would the cost have been lower, and/or the effectiveness of official action higher, if the mix had been different?

Are there hidden costs in terms of a legacy for the future – e.g., risks that stress might worsen again, or that moral hazard could distort future resource allocation?

First, could Kazakhstan have avoided severe financial stress by stronger preventative or remedial action? The analysis that underlay the actions of the NBK does not suggest that it would have been possible to resist to a high degree the tide of inward capital flows and of upward pressure on credit, asset prices and the real exchange rate. These were driven by "tectonic" shifts in the economy: the triple shock of transition reforms, of growing natural resource revenues, and of financial integration. Nor would it have been desirable to stifle the private sector by blanket controls.

At the margin, more might have been done in terms of an even stronger fiscal, monetary and prudential stance. Fiscal policy could have withdrawn stimulus sizably in 2006-7, and nominal interest rates might have been raised more aggressively. But against this it should be noted that some more advanced economies have entered the sub-prime crisis with less well-thought-through preparations than Kazakhstan, and in some cases with a seriously damaging policy mix. Moreover, the recent stress was a possibility, not a certainty; and the triggering events from the US economy were far more savage than any observers in international policy and market circles had anticipated. Ex post, the trade-offs inevitably emerge more starkly than ex ante.

Second, would an approach based on moral suasion or self-regulation have sufficed? Could non-regulatory approaches to prevention have worked as – or more – effectively at a lower financial and administrative cost for the NBK or the banks? There are indeed examples of the authorities using exhortation and having recourse to self-regulatory approaches, where this was judged a useful route. For example, the management of the FSA held regular meetings with second-tier banks, and sent recommendations to them about liquidity management and the need for pursuing conservative pricing policies on loans and deposits - which they consider stimulated these banks to be more pro-active in their internal analyses and decision-making.

However, contemporaneous discussions by the author of this paper with domestic and foreign banks suggest strongly, that suasion alone was not a feasible route during the upswing. Bankers essentially rejected the stability analysis of the NBK – or viewed it as much too risk averse. They believed, in essence, that their own low risk assessments were right. Regulatory action was indispensable.

There were also, however, some criticisms that measures should have been preceded by greater consultation, an important element of ex ante RIA. This issue deserves careful review for the future, though there are complications in discussing some measures as this may result in pre-emptive actions by banks.

Third, was the policy mix optimal in terms of effectiveness and of imposing costs on the economy? On balance, this study finds that the policy mix advocated by the NBK, and broadly adopted, was well-judged. Indeed, in late 2006 on the eve of the liquidity shock, positions advocated by the NBK compare well in some respects with some IFI advice, notably on the need for a restrictive fiscal policy. One clear question, however, which did not depend on the NBK, is whether the FSA would not have benefited from a larger injection of resources.

Fourth, are there hidden legacy costs? As with all actions by central banks and governments during the current turbulence, a key question is how to address the risks of moral hazard created by these public interventions. One traditional answer is to strengthen supervision, which exists in major part to counter risks of moral hazard in the financial system. This clearly is relevant in Kazakhstan. But it will be crucial to pay close attention to the broader incentives created by official policy intervention as the present stresses are resolved – including in the ways in which

emergency budget funding is channelled to the real economy; the ways in which beneficial owners of banks are "bailed in" (and/or diluted) as action is taken to strengthen bank balance sheets; and the forcefulness of official actions to pursue the consolidation of the banking system and the clean-up of balance sheets. Over the long run, this will be very important in determining the costs of recent official policy actions, since errors in this area could result in widespread misallocation of resources in the future.

Meanwhile, the present cycle in international financial markets, commodity prices and the real economy is far from over, so any reckoning on the impact of financial stability policies in Kazakhstan can only be provisional. The current liquidity stresses in global markets, and recessionary influences in many advanced economies, will continue to pose challenges that require prudent management of policies in Kazakhstan to avoid negative spill-over effects on the domestic economy.

In the period ahead, notably, easing oil prices will tend to widen the external current account deficit, while tensions in international markets may imply a continuing sizable net repayment of external bank borrowings. In this setting, there will be a delicate balance to strike in determining the right stance for monetary and fiscal policy. This will need to support demand yet avoid triggering an undesirable degree of exchange rate depreciation that could prove problematic for containing inflation and rebuilding confidence.

This means that the NBK may need to avoid a very rapid monetary easing in the period ahead, even in the face of an extended slowdown in domestic growth. As a corollary, fiscal policy should continue to give support to the economy in the period ahead. However, the thrust of fiscal policy could become more selective at the microeconomic level. It would be most effective if it combined an expansion of growth-oriented expenditure – such as infrastructure and education – with a cutback in distortive programmes such as subsidies or other support for private sector projects that are no longer viable.

These latent or contingent costs will be important to internalise in setting policies for the period ahead. Any definitive evaluation of financial stability policies will need to take into account the way the full aftermath of the recent stresses is finally handled. This said, the foregoing assessment offers a very clear picture of the "story so far." The financial stability policy strategy in Kazakhstan has been essentially right, deploying the right mix of measures, adopted for the right reasons.

Implications for Policy Design

For the future, nonetheless, there are lessons – and in many ways these are lessons of success. At the macro level, a key lesson is the wisdom of maintaining a prudent medium-term fiscal stance, avoiding stimulus in a boom and ensuring that support for the economy in times of stress is truly growth-supportive (avoiding distortive interventions). A further aspect of the public finances is the importance of keeping the National Fund invested – in normal times - in external assets that have an appropriate degree of liquidity: in this form it serves as a store of wealth, a dampener of demand pressures, and a source of collateral for the economy in times of stress.

Second, the supervisory challenge is far from over – including because action to avoid a crisis of confidence will have tended to foster moral hazard. More specifically, supervisors will need to pay continuing attention to concentrations in the external lending and funding exposure of domestic banks. There is also, over the medium term, a need to diversify the financial sector further, making it less dependent on a few major domestic banks. And it will be important, too, to engage in crisis readiness exercises that involve the relevant national agencies and also, over time, overseas supervisors.

Third, the NBK will need to offer continuing advice on the appropriate policy mix from a financial stability perspective – in a setting where attention to the role of the exchange rate may be fundamental, and where monetary policy will have to strike a delicate balance. In this connection, it will also be crucial to monitor carefully the aggregate liquidity profile for the banking system in the

period ahead. Moreover, in assessing financial stability policies, the NBK may be able to make continuing use of RIA techniques. These can be relevant as a tool for filtering the impact of ongoing NBK policy actions, as well as the contributions of other actors to preserving a setting of growth and stability in the Kazakhstan economy. To be effective, this process would need also to devote sufficient resources to monitoring and enforcement priorities.