ISSUES OF BANK SOLVENCY IN UZBEKISTAN: A MODEL-BASED COMPARATIVE ANALYSIS OF SELECTED BANKS

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Abstract

Banking system in developing and transition economies prone to vulnerability due to rapid systemic changes and reforms. Developing market principles penetare the banking system from different corners of transition background. Banking system of Uzbekistan is a central component of development-oriented transition reforms since separation from former Soviet Union. Progressive reforms and changing landscape in the global financial system bear considerable challenges for commercial banks, especially solvency and liquidity. Solvency has become a hard-to-solve issue in both developed and developing economies, while transition economies, including Uzbekistan, have a different scenario to tackle the problem. This article empirically analysed the solvency of selected banks through assessing the distance to bankruptcy via Altman's Z-score and Enyi's RSR models. Model estimations showed contrary financial positions in selected banks. Altman's model estimations revealed that selected banks are insolvent, while RSR model found banks financial healthy.

Keywords:Bank solvency;Bankruptcy perdiction;Altman's Z-score;Relative Solvency Ratio model;Uzbekistan;

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1.   Introduction

Banking system of developing and transition economies is comparatively resilient and less integrated to global financial environment. Developing profile of financial architecture, less volatile financial services market, easier market access, secure condition, lower level of competition enables banks to operate under an umbrella. Hence they face numerous challenges originated from external condition and economic restructuring. Especially in countries of gradual economic transition, banking system develops in a smooth and less competitive way within the trace of long term development scenario under market economy transition strategy. As an integral component of a rapidly growing transition economy, banking system of Uzbekistan has evolved on gradual basis and avoided negative implications of "great leap" policies by facilitating banks to launch large scale expansion frameworks. Regular growth in number of banks and financial inclusion, service spectrum and coverage of income groups were successfully achieved thanks to gradual adoption of market principles. As a result, banks began operating in a resilient and secure environment protected from external negative shocks from global economic imbalances and market turbulence. Penetration of market economy principles brought attributes of new economy to the banking sector. Competition for quality, market share and service price among banks and regulatory tools of market economy carried the concept and sense of risks rooted from external and internal sources. Risk pass-through channels linked Uzbek banks with international banking system in which banks share and diversify risks in a similar pattern. Consequently, Uzbek banks consistently face several risks including, solvency, liquidity, credit, interest rate risk etc. which are unavoidable challenges in any banking system of developing economies. Today's banking system environment is coping with solvency risk, as it leads to bankruptcy of banks by making them incapable of meeting their responsibilities towards customers. Especially, after global financial crisis, bank solvency has become a problem of global scale. Banks in advanced, developing and transition economies suffered from insolvency. In some countries' practices, long run insolvency period led to bankruptcy in banks, e.g. Lehman Brothers and Meryll Linch, as they could not meet the financial liabilities for customer firms and individuals.

Collapse of large financial institutions from insolvency and its impact on economic performance sparked interest of academia further. Researchers and policymakers investigated rescue and

solvency recovery opportuinities from scientific and regulatory standpoints. IMF, World Bank Group, Bank for International Settlements, European Central Bank and other regulatory and advisory bodies proposed several rescue strategies. Academia proposed numerous models and theoretical frameworks for bankruptcy prediction and prevention models with low efficiency and limited area of applicability, which were tested in recovery efforts of too big to fall banks. In line with that, scientists attempted to apply business bankruptcy and insolvency prediction models to banks by considering them as a company operating in banking sector. In 2013, Edy-Ewoh investigated assessment of solvency status of Nigerian banks in condition of central bank capital regulation conditions. He assessed the bans' bankruptcy profiles with Altman's Z-score model and Enyi's relative solvency ratio model. His findings revealed that regulatory and supervisory body should continue bank capitalization support policy, due to very sebsitive and fragile bank capital structure. Almansour (2015) used financial distress in Jordanian listed bankrupt and non-bankrupt companies using Altman's Z-score. He found that application of bankruptcy prediction models to corporate individual entities is more significant in assessment. Jan and Marimathu (2015) analysed the bankruptcy profile of Islamic banking industry in the sample of selected top 5 Islamic banks in the world using a modified Altma's Z-score prediction model. Their studies showed that relationship between productivity and bankruptcy is insignificant, while annual growth rate is more connected with insolvency.

As mentioned, banking system stability scenario for Uzbekistan is different from other countries which adopted market fully principles. Several structural distinguishing features exist in bank requirements and overall baking sector. Therefore, banks inUzbekistan often are far to fail in meeting operational requirements. Firstly, banking system accommodates commercial banks only: currently 27 commercial banks operate in Uzbekistan who fully meets Basel Accord 2.5 requirements for bank stability. Secondly, liquidity is more than 2 times and capital adequacy rate is 3 times higher than required level. Even in global financial crisis period, Uzbek banks kept stability and efficiency indicators without any failure in funding and meeting liabilities towards clients. Thirdly, performance of banking system is central to financial system stability, as main part of capital accumulation and movements in domestic economy is of banking sector, since financial markets perform accumulation and circulculation functions in developed and emerging economies.These three differences show the strong position of banking system in

economic stability and growth.In consistent with economic growth patterns, banking sector indicators grow at an accelerating rate by strengthening its role further. This paper studies solvency of selected systemically important large banks in Uzbekistan. It runs a financial statement analysis approach by considering banks as a business entity. Considering the bank as a profit-seeking businesss entity, Altman's bankruptcy probability model and Enyi's relative solvency ratio model are exploited to assess the solvency of selected Uzbek banks.

2. Research Method

Two models are used to assess the solvency of selected banks. We exploit these models to identify the existing problem of banks' solvency issues thjrough parametric differences. A bank is a business entity, which work for a motive of profit. As a profit-seeker organization, they prepare a balance sheet which reflects their financial profile. In 1968, Edward Altman proposed a financial distress evaluation model for particular types of companies in terms of ownership and geography. This model is used to predict the probability of bankruptcy of a firm. Z-score is a linear combination of five business ratios weighted by coefficients as indicators of bankruptcy of a firm in financial distress [4]. Original definition model is:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.999X_5 \qquad (1)$$

Here, X_1 - working capital to total assets, X_2 – retained earnings to total assets, X_3–earning before interest and tax to total assets, X_4 - market value of equity to total liabilities, X_5– sales (deposits) to total assets.

Table 1. Altman's Z-score discrimination criteria

Z-score	Status	Interpretation
2.99 and higher	Safe	low probability of bancruptcy within 2 years
1.81 - 2.99	Gray	good chance for going bankrupt within 2 years
1.81 and lower	Distress	high probability of distress within 2 years

The second model to be used in this study is relative solvency ratio (RSR) model proposed by Enyi Patrick Enyi in 2005. RSR model is used as an alternative to Altman's z-score model, and similarly it used financial statement data to predict solvency ratio of a firm. Enyi's RSR model

has a broader coverage of solvency measures. Relative solvency is assessed in several stages and integrated ratios [7]:

1.   Operational Break Even Point (OBEP) –financial stance of a firm in which firm's earns adequate income to cover all attributable cost.

$$OBEP = (1 + m)/2m \qquad (2)$$

Here, m – mark-up ratio.

2.   Mark-up ratio (MUR) – measure of ability of company management to cover the costs and maximize profit.

$$m = MUR = PBT/TOC \qquad (3)$$

Here, PBT – profit before tax, TOC – total operating cost.

3.   Working capital required (WCR) –a measure of capital adequacy in a firm.

$$WCR = (TOC/52) * OBEP \qquad (4)$$

4.   Relative solvency ratio (RSR) – a measure of firm's liquidity indicator in terms of availability of adequate working capital for cumulative demands for covering the cost of furher activity and lossess. It reflects the likehood of insolvency and stage of insolvency.

$$RSR = AWC /WCR \qquad (5)$$

Here, AWC – available working capital.

5.   Chance of insolvency (COI) – probabilistic measurement of insolvency likelihood, fluvtutes between 0 and 1. If COI is equal to 0, company is sound and solvent. If COI is equal around 1, a firm is bankrupt and insolvent.

$$COI = 1 - RSR \qquad (6)$$

Table 2. Interpretation table of relative solvency ratio and choice of insolvency

RSR	COI	Interpretation
0	1	Firm is bankrupt
0.01	0.99-0.75	Firm is insolvent and going bankrupt.
0.26-0.50	0.74-0. 50	Firm is technically insolvent
0.51-0.75	0.49-0.25	Firm has poor financial health
0.76-0.99	0.24-0.01	Company has fair financial health
1.0 and above	0 and less than 0	Company is financially healthy/solvent

Banks are selected in terms of their main operational area. Although all banks are universal and offer all banking services in all spheres, some of them have larger market share in providing financial services to particular sectors. Data is compiled from annual reports of selected commercial banks available in public disclosure. Data is provided in UZS (Uzbek soum) and all numbers indicated in calculations are in Uzbek soums excluding ratio coefficients.

Table 3. Financial statement statistics of selected banks, billion UZS

Indicator/Name	People's Bank	National Bank of Uzbekistan	Asaka Bank	UzPromStroyBank	Agrobank
Total assets	3508.9	15754.4	7239.2	8916.3	4404.5
Total liabilities	3214.2	14480.2	6493.4	8047.8	4043.6
Total deposits	2432.1	1013.4	4421.0	2339.2	2054.1
Total operating cost	285.2	64.5	302.1	217.8	246.6
Retained earnings	87.6	615.4	154.8	69.9	60.9
Earnings before tax	130.5	140.1	97.3	88.3	77.5
Market value of equity	254	658.8	550.2	707,0	243.9
Working capital	54.9	274.4	45.8	86.9	60.9

Source: Author's data compilations from financial statetments of selected banks

3. Results and Analysis

Results of exploitation of these two diverse models provided a broad scenario of solvency and financial soundness of selected five banks – People's Bank, National Bank of Uzbekistan, Asaka Bank, Uzpromstroybank and AgroBank. They are main supplier of banking services who equally offer universal and sector specific services. Altman's Z-score model indicated that selected all five banks are in financial distress, as their individual Z-score is below 1.81(Table 4).

Table 4. Z-score estimation of selected banks

Indicator/Name	People's Bank	National Bank of Uzbekistan	Asaka Bank	UzPromStroyBank	AgroBank
$1.2X_1$	0.018775	0.020900	0.007488	0.011695	0.016592
$1.4X_2$	0.034951	0.054686	0.029937	0.010975	0.019357
$3.3X_3$	0.122730	0.029346	0.044354	0.032680	0.058065
$0.6X_4$	0.047414	0.025090	0.050839	0.052710	0.036190
$0.999X_5$	0.692252	0.064260	0.610092	0.262088	0.465897
Z-score	0.916122	0.194282	0.742710	0.370148	0.596101
Solvency status	distress	distress	distress	distress	distress

People's Bank leades the Z-score ranking of selected banks with 0.916122 coefficient. Asaka Bank, AgroBank, UzPromStroyBank placed in next position with 0.742710, 0.596101 and 0.370148 z-scores respectively. National Bank of Uzbekistan gained the lowest score by gaining the status of most insolvent bank among selected.

Application of Enyi's RSR model for selected banks showed a contrary financial position to z-scores. Al banks titled financial healthy with below "zero" choice of insolvency coefficient. Interestingly, National Bank of Uzbekistan, gained the lowers Altman's z-score found the most solvent in Enyi's model estimations. UzPromStroyBank (-12.448), People's Bank (-5.280), AgroBank (-5.138) and Asaka Bank (-2.842) continued the list of financially health banks (Table 5).

Table 5. RSR and COI coefficients for selected banks

Indicator/Name	People's Bank	National Bank of Uzbekistan	Asaka Bank	Uzpromstroybank	AgroBank
OBEP	1,594	0,730	2,052	1,543	2,092
MUR	0,457	2,172	0,322	0,405	0,314
WCR	8,742	0,905	11,921	6,462	9,921
RSR	6,280	281,435	3,842	13,448	6,138
COI	-5,280	-280,435	-2,842	-12,448	-5,138
Solvency status	healthy	healthy	healthy	healthy	healthy

4. Conclusion

The conducted empirical has proved that selected banks of this study have several distingushiging properties.As we expected, employed methods provided contrasting results: parametric differences in models shown problematic aspects of solvency provision in selected banks. Altman's Z-score model showed that all selected banks are insolvent and having financial distress, while Enyi's relative solvency ratio model found all banks are financially sound and profitable. It should be taken into account that banking system of Uzbekistan is developing and eliminating the elements of old economic system. As observed in other countries' experience, empirical models could not reflect the real condition in banking system in full spectrum, if banking system is in modernization phase. Key reason of opposite results is linked with banks' stock prices in domestic financial market. Banks are comparative active in financial markets as an investor than a listed entity. Due to poor performance of secondary market of bank stocks, difference between book value and market values is insignificant. Bank marketing and financial innovations are another factor calling for insolvency. To stay sound in financial services market, banks should develop marketing and service coverage regularly with fair competition. The third factor is the lack of flexibility of banks in keeping the capital structure in the context of financial services market turbulence. Banks should carefully monitor and take efficient measures to keep profitability and stability.

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