

# Prudential Bank Solvency Framework and Specific Solvency Stress Test for Transition in Uzbekistan

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## Abstract

This paper studies the applicability of globally recognized solvency measures for banking system solvency framework of developing and transition economy of Uzbekistan through theoretical concepts and pure practical evidences from several countries. Besides, it clearly indicates the differences and inherent aspects of banking systems of transition economies that should be on account in solvency stress tests. Theoretical recommendations in this article can be used in bank solvency frameworks or setting minimum requirements in other transition economies with similar banking system characteristics.

## 1. Introduction

Implications of global financial crisis demonstrate the importance of having an effective and appropriate financial system regulations and safety nets (BIS, 2012). The design of appropriate regulatory strategy to foster financial system stability and development has become a key area of focus in all countries to withstand the implications of the crisis which still have negative effects e.g. tensions and pressures in economy originated from banking and financial market disorders. Responses of economies to the impact of the crisis on banking system stability were derived from main weaknesses of financial sector and lessons from economywide downturn. For example, the United States enacted Comprehensive Dodd-Frank Act stress testing and Capital Analysis and Review (CCAR) to ensure the solvency by holding the capital of large banks above minimum requirements. Euro area banks are required to have more transparent balance sheets and better quality of assets as outlined in Comprehensive Assessment Exercise for one year period. Indonesia, the Netherlands, Sweden, Switzerland and the United Kingdom imposed lower debt-to-income ratio for banks. Russia and Turkey raised the risk weights and provisioning rates for consumer loans in order to strengthen loss-absorbing buffers. China raised bank provisioning requirements and risk weights and tightened regulation of non-standard credit products, and restricted off-balance-sheet funding (IMF, 2014).

However, main focus of this paper is directed for issues of creating an appropriate bank solvency framework for transition economies which are vulnerable to any macroeconomic shocks and systemic imbalances. Ongoing economic reforms and formation of market based economic relations among population, relentless efforts for stability and growth consolidate the importance of banking system soundness in resilient transition. These aspects are common for nearly all post-Soviet countries that have strictly relied on national banking system stability policies targeted to cope with bank failures. In recent years the need to ensure bank solvency has dominated banking sector reforms in these economies. Banks' financial strength deteriorated after the global financial crisis and many post-Soviet economies entered a bank solvency panics. Unsound profile of financial intermediaries revealed the growing need to keep bank solvency and profitability in condition of transition and systemic weaknesses. Bank solvency measures involved the recognition of profit losses, the disposal of impaired assets, and the build-up of robust capital buffers which led to significant fall in banks' activeness in economic growth (Kan, 2011). However, some banking system stability policies have been strengthened through special frameworks to support failing banks based on international best practices. For instance, being a transition economy, Uzbekistan's banking system has been took measures for keeping the sound solvency positions of commercial banks. Although those measures cushioned the crisis waves, concern of the policymakers from unexpected implications caused further actions. Studies accomplished in this article are built around banking system profile and indicators of Uzbekistan to analyse the responsiveness of banking system of transition economies which facilitates proposing recommendations common for all post-Soviet economies.

## 2. Literature review

Solvency of banking system has in the centre of debates among policymakers and academia for several decades. They have offered different solvency procedures, mechanisms, facilities, theoretical models and even strategies. Banking systems of most economies, both advanced and developing, have structural weaknesses in terms of stability and flexibility. Solvency and liquidity provision is the hottest point of banking system in economic crisis. Because as Diamond and Dybvig (1983) stressed, the primary function of banks is to ensure solvency by offering funding that is more liquid than their asset holdings. From this statement, a bank is found insolvent if

the value of its assets falls below the value of its debt and loses the ability to meet minimum regulatory capital requirements – solvency frameworks. This solvency mismatch makes commercial banks vulnerable to asset shocks. The reason for studying the solvency framework of banks in transition economies is based on the literature explaining bank failures based on the strength of the bank's fundamentals. As Gorton (1988) proves that bank failure is systematic responses to the perceived risk of banks. Diamond and Rajan (2005) found that insolvent banks deteriorates liquidity and profitability stance in the entire banking system. In condition of transition economy, banks responses to solvency risk are not so sufficiently strong that they cannot mitigate the probability of losses or crisis. Therefore, in line with developing and emerging counterparts, transition economies (they may be emerging or developing) need more prudent and flexible bank solvency regimes and policies. As IMF and World Bank joint research group found developing economies must strengthen the legal, regulatory, and supervisory frameworks of banks for keeping solvent banking system (2009).

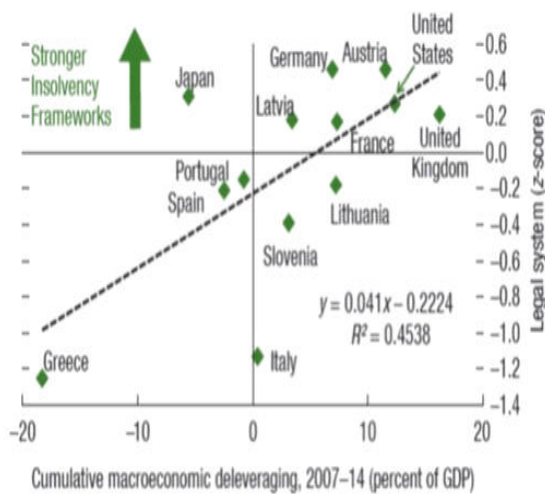
Responsiveness of banking system to insolvency shocks is often evaluated through stress test with different scenarios. Solvency stress testing models are large in number but different in fitting with the profile of banking systems. They devise a variety of approaches to examine the ability of banks to respond financial shocks. Mostly used and widespread stress testing model is forward looking model offered by European Central Bank which considers all conditions that banks may face. Other models assume only limited types of financial conditions and provide conclusions in a limited scope. For instance, balance-sheet approach assumes that balance sheet of poorly operating banks indicates the probability of insolvency and even bank crisis (Sahajwala and Van den Berg, 2000; Jagtiani, 2003). One cannot reject that balance sheet of banks clearly shows the financial stance of banks, but it can be said that it is a common fact and all solvency models rely on bank balance-sheet data. Market indicators approach assumes that equity and debt structure of banks can provide data on banks' financial condition along with bank-balance sheet (Bongini, Laeven, and Majnoni, 2002; Gropp, Vesala, and Vulpes, 2002). Because market based early-warning systems contain the data on future prices of underlying bank assets and can signal the probability of default.

### **3. Case for bank solvency framework**

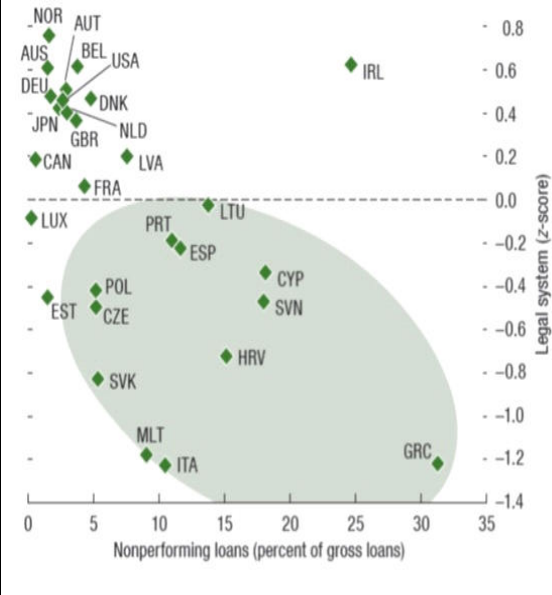
Bank solvency frameworks and insolvency regimes are not new term in international banking. As systemic banking failures occur, requirements for early warning systems – preliminary sets of signalling parameters for banking system performance are introduced in international experience. Benchmarking and standardization of bank performance in the scope of an entire banking system work as solvency requirements. In 1988 Basel Committee for Banking Supervision enacted Basel Accord for bank performance which was the first milestone for international banking system regulatory and supervisory framework. Then, countries began launching a country-specific set of requirements for soundness of bank profiles based on the indicators of the Basel Accord in 1991. The last boom, after global financial crisis of 2008, most countries launched macroprudential policies for exiting and recovering the broken financial system from the waves and long term implications of the crisis. Macroprudential policies have been working on mainly rescuing the banking systems as a set of counter-crisis, post-crisis recovery and stabilization measures in most suffered economies from the crisis. In this period, vulnerable banking systems lost value of bank assets because of improper solvency frameworks and early-warning systems or lack of flexibility to modifications. As a result, system-wide failures in financial sector led to the loss of power not only in many systemic important banks and too big to fail banks of advanced economies but also in second-tier commercial banks of developing and transition economies. Because risk measurement and management is comparatively difficult in banking systems of transition economies due to regular legislations and reforms which raises the exposure to external shock and their hidden effects.

Most developing and transition economies are manipulating solvency frameworks in limited scope focusing on measurement and management of internal risks only. They often rely on minimum requirements of leverage ratio, despite the ratio of regulatory capital to risk weighted assets. Although leverage ratio ensures simplicity and transparency, it cannot ensure the power of the banking systems how to capture insolvency. Moreover, in case of uncertainties in risk measurement, risk-sensitive parameters and shifting the minimum requirements risk assessment may improve solvency risk capture.

**Figure 1. Insolvency frameworks and macroeconomic deleveraging**



**Figure 2. Strength of insolvency procedures and Nonperforming loans, 2013**



Source: IMF, 2014.

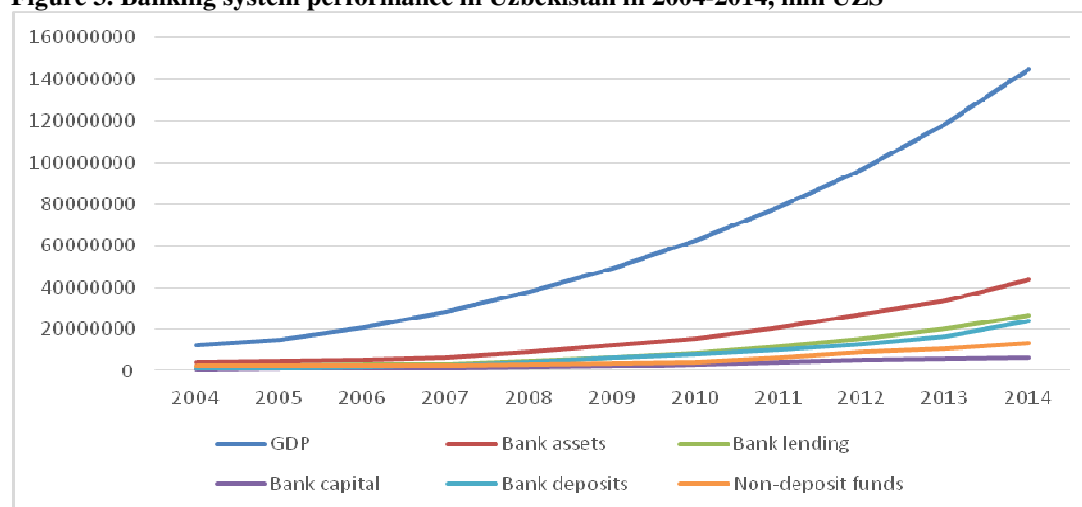
Therefore, it is mostly argued that ability of risk capture is a prerequisite of prudential framework for keeping the banking system solvent. According to financial sector development and financial soundness assessment principles, banking system stability is evaluated based on capital adequacy, liquidity and asset quality indicators (Figure 1 and 2). It indicates that capital adequacy indicators can be the best measurement of the ability of banking sector to absorb potential losses and withstand distress. Because potential risks to the solvency of banking system originate from impairment of assets which are required to be in normal quality to stay solvent. Asset quality indicators reflect quality of bank lending and bank asset portfolios. Liquidity parameters of bank solvency monitor the banks with highly leveraged and exposed to impaired assets.

Gained experience in international banking indicates that solvency frameworks of many countries are not sufficiently effective (IMF and World Bank, 2009). Because an effective bank solvency framework must be interlinked with a proper supervisory framework and relevant financial safety nets, and must be structured around potential systemic effects of bank failures, safeguarding financial stability in the course of bank insolvency and a special role of banking authorities in bank insolvency.

#### 4.1. Solvency stance and orientation of banking system in Uzbekistan

Banking system of Uzbekistan has been performing comparatively well despite harsh conditions two periods of crises. It underwent two waves of bank insolvency challenges. In early independence period all banking systems of post-communist states faced bank insolvency problems originated from conversion to new national currencies, high inflation and lack of bank capitals. As a result, national banking systems faced solvency shortages derived from economy-wide effects. The second wave came in global financial crisis period which had a multilateral impact on all economic systems with greater shocks in banking system. Despite systemic difficulties, series of external shock from disintegration from Russian rouble zone, changing economic environment, Uzbek banks kept the robust growth and customer confidence (Figure 3). Number of banks grew and their services have grown and financial inclusion has increased.

**Figure 3. Banking system performance in Uzbekistan in 2004-2014, mln UZS**



Source: Central Bank of Uzbekistan, 2004-2014

Central Bank of Uzbekistan took appropriate measures to prevent the whole financial sector from crisis in deep through several financial stability mechanisms and financial crisis prevention facilities by means of direct and indirect state intervention and regulation instruments. Consequently, Uzbek banking system was comparatively stable in post-crisis recovery period (Table 1). Being an export oriented and investment attractive transition economy, Uzbek economy heavily relies on interbank operations and adequacy of currency reserves in international trade, which primarily requires a sound performance of banking system in order to facilitate a favourable investment and trade environment. An effective banking system for export capacity development and investment stimulation must have a long term bank solvency policy with prudent principles.

**Table 1. Post-crisis bank solvency indicators in Uzbekistan, 2011-2014**

| Bank stability indicators                 | 2011 | 2012 | 2013 | 2014 |
|---|------|------|------|------|
| Risk weighted regulatory capital          | 24,1 | 24,3 | 24,3 | 23,8 |
| Risk weighted tier-1 capital              | 21,8 | 22,3 | 22,5 | 22,1 |
| Nonperforming loans to total bank capital | 1,2  | 1    | 0,9  | 0,9  |
| Non-performing loans to total lending     | 0,7  | 0,5  | 0,4  | 0,4  |
| Asset quality                             | 1,9  | 1,9  | 1,95 | 1,97 |
| Capital adequacy                          | 14,4 | 16,3 | 17,2 | 17,6 |
| Interest rate margin to gross income      | 35,2 | 36,4 | 36,4 | 37,2 |
| Liquid assets to total assets             | 31,2 | 31,8 | 31,9 | 31,9 |
| Liquid assets to long term liabilities    | 71,3 | 73,4 | 73,5 | 74,7 |
| Total capital to total assets             | 12,2 | 11,4 | 11,2 | 11,7 |

Source: Economic Bulletin of Uzbekistan, 2015

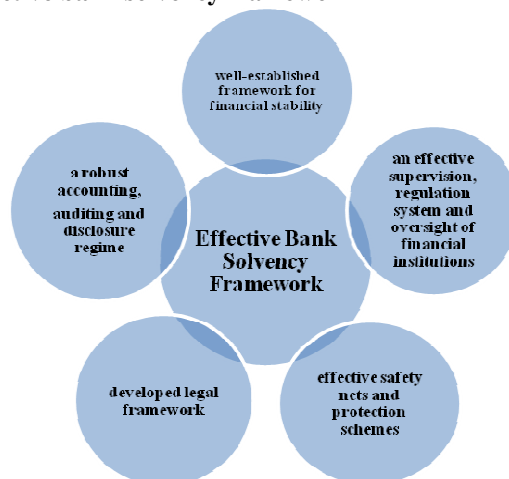
Uzbekistan launched a protection scheme from credit risk in order to keep second-tier banks stable in condition of excessive lending. In this scheme banks assess the riskiness of a loan in five broad levels and transact the particular percentage of the issued loan to the account of the bank in Central Bank of Uzbekistan as a mandatory reserve. As a long term solvency framework Uzbek banking system adapted minimum requirements of Basel Accord 2.5 as it lines the floors of bank capital management, and it will adopt Basel III from 1 January 2019 as an approbation for a particular period (CBU, 2013).

#### 4.2. Prudent bank solvency framework and specific issues of solvency stress test for Uzbekistan (and other transition economies)

Specific effective bank solvency framework is intended to identify and mitigate possible threats to banking system stability and to design appropriate set of measures. It focuses on exposures, buffers, and linkages to assess the soundness and vulnerabilities of the financial system, as well as the economic, regulatory, and institutional determinants of financial soundness and stability.

It considers whether the financial sector exhibits vulnerabilities that could trigger a liquidity or solvency crisis, amplify macroeconomic shocks, or impede policy responses to shocks. The monitoring and analysis of financial stability involves an assessment of macroeconomic conditions, soundness of financial institutions and markets, financial system supervision, and the financial infrastructure to determine what the vulnerabilities are in the financial system and how they are being managed.

**Figure 4. Effective bank solvency framework**



Source: Author's compilation

While these five principles of effective solvency framework are commonly applicable, key elements can be adjusted in consistent with existing financial, legal, institutional, and cultural conditions of any banking system. In Uzbekistan's rules on bank solvency ratios are based on the minimum requirements of the Central Bank rooted from Basel rules of 1988. The rules are harmonized of requirements for bank assets, solvency ratio of banks on account of credit risk, capital adequacy with respect to foreign exchange risks, position risks, settlement risks and other risks of exposures. Prudential bank solvency framework should be built on the basis of concrete model because of transition to modern and dynamic banking system from traditional one. Transition character and developing structure of Uzbek banking system require applicability check-ups and stress tests for solvency and liquidity profiles, as shown in FSAP of IMF. Assessment of ability of banking system to withstand different risks and systemic shocks enables authorities to set accommodative requirements for effective bank solvency framework. Specifically, solvency stress test should be tailored for Uzbekistan deriving from standard bank solvency stress test principles and mentioned features of bank is system in following respects:

- it takes exposures of a banking system into account, including both performing and nonperforming loans and both expected and unexpected losses), although bank stress tests tend to focus on performing loans and unexpected losses in principle;
- it focuses on probability of default derived from banking system, while bank solvency stress tests typically focuses on historical default rates and models;
- it relies on bank-specific data and is suitable for assessing bank capital needs especially, balance sheet solvency and asset quality because bank ownership is in four different forms;
- it reveals solidity of initial capital and deterioration scenario of profit loss under solvency pressures
- it clearly highlights the presence of capital buffers and available safety nets.

#### 5. Conclusion and Recommendations

Many countries affected by global financial developed their bank solvency regimes through balance sheet restructuring: recapitalization; stimulating low interest rates to increase profits from loan and investments; and significant fiscal support for improving lending performance. As their experiments proved that monitoring and analysis of financial stability involves an assessment of macroeconomic conditions, soundness of financial institutions and markets, financial system supervision, and the financial infrastructure to determine what the vulnerabilities are in the financial system and how they are being managed.

Although the new regulatory structure is functioning well, more intensive and intrusive supervision is needed. Compliance with international standards for regulation and supervision of banks and insurers is generally high, but national resolution and deposit insurance frameworks need to be strengthened, and positive changes to supervisory practices need to be sustained.

Having a solvent banking profile requires sound stability, efficiency and profitability indicators. In the context of transition economies, following recommendations raise these three interlinked soundness indicators:

- Using Basel III minimum requirements to Uzbek banking system in wider coverage of bank determinants in order to (a) ensure system-wide bank solvency and (b) improve transparency of banks' activities, (c) transfer the devaluation reserves from regulatory capital to private capital, (d) provide bank customers with information on asset quality of service banks.
- Banks always need permanent sources of income to stay solvent in the market of financial services by seeking new opportunities of risk free financial products and widening financial inclusion.
- Restructuring the composition of bank assets by raising deposit to lending ratio and reviewing the profitability of Greenfield investments (banks in all post-Soviet economies have greenfield or direct investments).
- Strengthening credit guarantee schemes and terms & conditions.
- From practical point of view, wider involvement in government's social projects although they bring less profit. Government covers the lost income at the end of the fiscal year (the only loss in time value of money) and supports the bank if it faces temporary insolvency. This practice is very common socially oriented market economies including Uzbekistan.

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