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BANKING SYSTEM FRAGILITY: CASE OF THE REPUBLIC OF MOLDOVA

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Abstract

The paper studied the determinants of Moldovan banking system fragility. It underlines the existing researches into the empirical determinants of banking fragility. The analysis revealed that there are numerous channels through which weaknesses within the macroeconomic conditions and structural characteristics might increase banking system fragility. The main macroeconomic determinants which may have an impact on Moldovan banking system fragility are: excessive domestic liquidity, pro-cyclical character of the banking system, dependence on remittances, financial dollarization. There are also several banking characteristics which play a role for Moldovan banking system fragility: the undermined intermediation function, high level of bad loans, uncertainties in the ownership structure, low presence of foreign strategic investors. The paper employed a quantitative, a qualitative and a comparative analysis using the financial soundness and structural indicators of the Moldovan banking system in order to assess the impact of various determinants on Moldovan banking system fragility. The results reveal a high degree of capitalization and liquidity of Moldovan banking system, factors which contribute and maintain the general stability of the entire financial system.

Key words**:** *banking system, capitalization, concentration, fragility determinants, liquidity, nonperforming loans*

INTRODUCTION

A strong and stable banking system is considered to be „an important driver of future GDP growth" [10], which "facilitates (rather than impeding) the performance of an economy and of dissipating financial imbalances that arise endogenously or as a result of significant adverse and *unanticipated* events" [13]. But the causal link is not unidirectional, positive performances of the economy in its turn influence the banking system situation. There are numerous channels through which weaknesses within the macroeconomic conditions and structural characteristics might increase banking system *fragility*. Low GDP growth, high real interest rates, and high inflation are significantly correlated with the banking fragility due to occurrence of different financial risks within the system. Worsening of borrowers' financial situation can damage in its turn the banking system. Usually, banking crises tend to manifest themselves during periods of weak economic growth and loss of monetary control [7]. Banking system fragility reduces when banks in the system jointly hold more liquid assets, are better capitalized, and when regional banking systems are more competitive [6].

Prudently regulating the banking system is undoubtedly a major objective for financial regulators because of the enormous cost of banking system instability. Therefore, a thorough understanding of the underlying determinants of banking system *fragility* and identification of *crises events* is a foremost challenge for a prudent financial regulator.

The financial crises of the past decade, and the IMF's initiative to build an early warning system against such crises, have stimulated a wave of research into the empirical determinants of *banking fragility*.

Various studies have proposed early warning indicators of impending turmoil in banking systems (e.g., Caprio and Klingebiel (1996), Demirguc-Kunt and Detragiache, 1998, 2002, 2005; Bordo et al. (2001), Glick and

Hutchison (2001), Gavin and Hausman (1996), Rojas Suarez 2001; Goldstein and Turner (1996), Kaminsky and Reinhardt (1996, 1999), Sundararajan (1991), Mishkin (1996) etc.

A common methodological challenge facing empirical research in this area is the so-called the *events method*, i.e. the *identification of crises events*, such as forced bank closures, mergers, runs on financial institutions and government emerging measures etc.

European Central Bank in 2012 has focused on early warning indicators for developed countries [2], which differ from the crises events in developing countries. Given large differences among emerging markets, a single set of indicators will not "fit all". The use of financial indicators that, while appropriate for industrial countries, do not work in emerging markets. Bank supervisors' records of prompt identification of banking problems in emerging markets has not been satisfactory [12].

ECB results show that the ratio of domestic private credit to GDP represents the most consistent early warning indicator of banking crises *in developed economies* across the various specifications and time horizons (warning sign al should be issued whenever the most robust indicator rises more than 2% above its long-term trend). In addition, rising FDI flows, increasing money market rates, and global economic booms (rising world GDP and inflation) are also important risk factors worth monitoring.

Weaknesses and *vulnerabilities* within the banking sector may affect the entire financial system. There are generally three characteristics of the notion of *financial vulnerability* [4]:

– significant loss of confidence of economic agents in the financial system (financial institutions and financial markets);

– inability of financial institutions to efficiently play the role of intermediation;

– spreading of financial vulnerability to the entire economy.

The weakness of the banking system could be seen as an aggregation of weaknesses of individual banks coupled with the resulting negative externalities [14].

To distinguish between fragility in general and crises in particular, and between localized crises and systemic crises, Demirgüç-Kunt and Detragiache (2005) established that for an episode of distress to be classified as a full-fledged crisis, at least one of the following four conditions had to hold [3]:

-the ratio of nonperforming assets to total assets in the banking system exceeded 10 percent;

-the cost of the rescue operation was at least 2 percent of GDP;

-banking sector problems had led to a large scale nationalization of banks;

-extensive bank runs took place or emergency measures such as deposit freezes, prolonged bank holidays, or generalized deposit guarantees were enacted by the government in response to the crisis.

Republic of Moldova is a small country with a financial sector dominated by the banking system, which accounted for 93 percent of total financial assets and 96 percent of total loans provided by the financial sector at the end of 2012 [15]. The local banking system has a low degree of connectivity to European and world banking system due to a very low presence of international banks on the market[1], which has determined *no direct contagion* within the last financial crises. The effects of the crises were felt indirectly by the banks, through the channel of remittances and foreign trade, which have diminished substantially as a result of economic decline in Europe. The decline of private consumption in the euro area has contributed to the decrease in Moldovan exports to EU and of the volume of remittances in 2012. Thus, the general effect of the financial crises on the Moldovan banking system was felt *on the banks' asset side*. The mentioned tendencies have negatively influenced creditworthiness of Moldovan borrowers and respectively the quality of local banks' loan portfolios. There

[1] There are only 4 banks with 100% foreign capital of 14 commercial banks operating in the local banking market.

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are also some structural shortages which increase the fragility of the local banking system.

MATERIALS AND METHODS

The research is initiated with the goal to detect the main *determinants* of the Republic of Moldova's banking system. The methodological base of this empirical research is the so-called the *events method*, i.e. the identification of the events which could lead to fragility of the banking system. These include in particular qualitative, quantitative and comparative analysis of financial soundness and structural indicators.

RESULTS AND DISCUSSIONS

There are several *banking characteristics* which play a role for banking system fragility: system's liquidity, capitalization, competition, diversification, presence of foreign banks, and wholesale funding [4]. A higher *capital base* provides a cushion against insolvency. A better capitalized banking system helps in reducing possible contagion effects from individual bank failures in the same country or region.

The Republic of Moldova's banking system has a very high degree of capitalization and liquidity, factors which contribute and maintain the general stability of the entire financial system. The average capital adequacy ratio of the Moldova's banking system recorded for 2009-2012 (29,2 per cent) indicates a high degree of banks safety and the potential to perform risky operations without affecting the capital. Among countries from Eastern Partnership and some EU countries with similar size and economic problems, Moldova has the highest level of the capitalization and liquid reserves[2] (fig. 1).

[2] Ratio of bank liquid reserves to bank assets is the ratio of domestic currency holdings and deposits with the monetary authorities to claims on other governments, nonfinancial public enterprises, the private sector, and other banking institutions. (World Bank)

The *liquidity* on a bank's balance sheet serves as a first line of defence against liquidity shocks. Greater banking system liquidity enhances the stability of the domestic banking system. Despite high liquidity and capitalization ratio of the Moldovan banking system, access to finance continues to be identified as one of the primary constraints for companies in Moldova [9]. Shortage of long maturities remains the main barriers in access to finance.

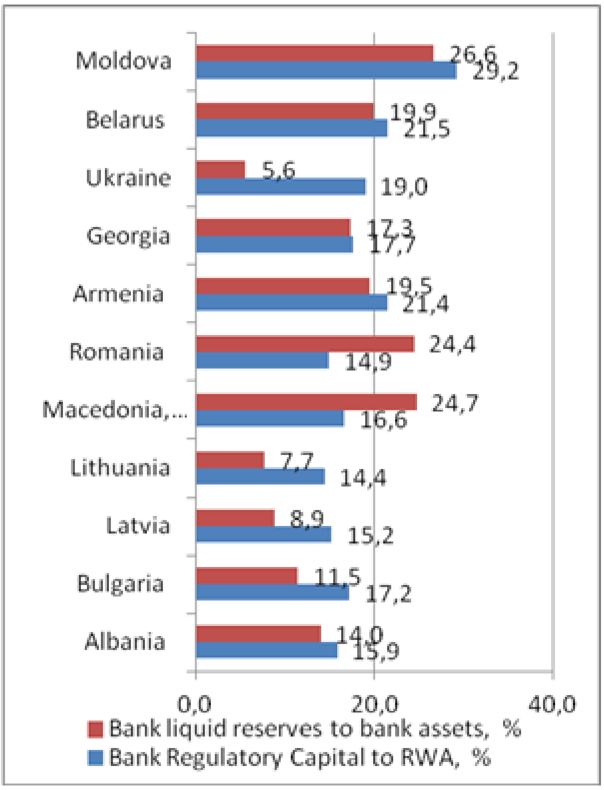

Fig.1. Bank liquid reserves to bank assets, Bank Regulatory Capital to Risk-Weighted Assets, (%) (International comparison), average rate for 2009-2012
Source: compiled on the basis of World Bank and IMF data base, Financial Soundness Indicators tables 2009-2013

The core of the fragility problem is the maturity transformation between liabilities and assets [1]. Deposits are usually demandable, while loans are long term investments. When there is a run, and a large number of depositors wish to withdraw their funds prematurely, the bank must find liquidity, either by borrowing in the interbank market or by selling assets. Both solutions to the liquidity problem on the deposit side are problematic. The interbank market may not be available if, as in the 2007 crisis, financial markets stop working properly. Selling

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assets to meet short-term liquidity demands risks getting prices well below the assets' intrinsic value.

The availability of long-term financial resources in the Moldovan banking system remains limited, only 17,16 per cent of all deposits have the maturity more than 1 year, while the most requested loans are those with maturity greater than one year – 74,9 per cent (fig. 2).

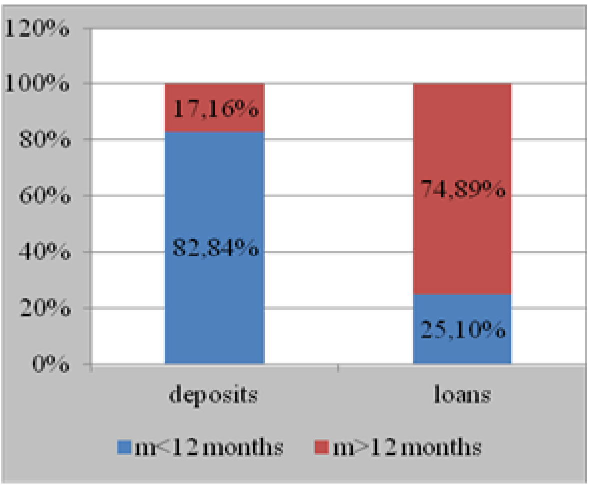

Fig.2. Maturity structure of deposits and loans within the Moldovan banking system (%), June 2013

Source: compiled on the basis of National Bank of Moldova data base, 2013

The main sources of long-term lending (for periods longer than 3 years) in the domestic banking system remain the equity capital and external sources of credit offered by international financial institutions.

Instability problems also could arise *on the banks' asset side* [11]. Their great reliance on debt and the private information that banks possess on their borrowers may induce them to take excessive risks in their investments or in granting loans. This type of risk is much more pronounced in the financial sector than in others, both because banks' assets are more leveraged and more opaque and because banks' liabilities are insensitive to asset risk, due to deposit insurance or implicit state guarantees.

An alarming feature of the domestic banking sector is the high level of bad loans (14,5 per cent in 2012). Economic contraction in 2009 caused a significant increase in non-performing loans (substandard, doubtful and loss) of the total loan portfolio from 5.9% in 2008 to 16.3% in 2009. Sudden increase of credit risk during this period led banks to restrict lending and to significantly increase the allowances for loan losses. With few exceptions, the trend of deterioration in loan quality continued to be a common feature for the European banking market in 2012 due to sovereign debt crisis (fig. 3).

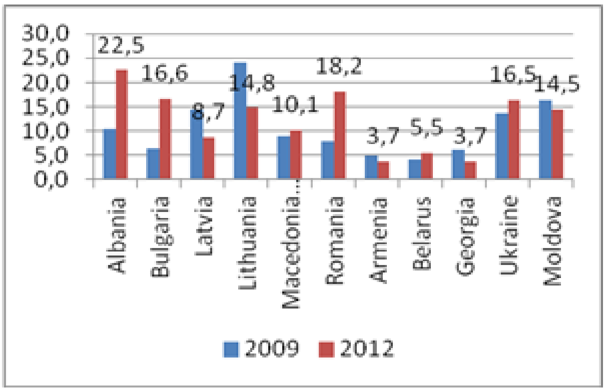

Fig.3. Nonperforming loan ratio (International comparison), 2009-2012

Source: compiled on the basis of IMF data base, Financial Soundness Indicators tables, April 2013

The recent financial crisis has shown that *banks' funding structure* is important to their resilience. Banks can finance themselves with both depository funding and *wholesale funding* (i.e. funding from other banks, money market funds, corporate treasuries and other non-bank investors) relying mostly on wholesale funding have been severely affected by the crisis. Banks in Australia and Canada, for example, have been very resilient to the crisis because they have relied mostly on depository funding, much of which came from retail sources such as households [4]. Reliance on non-core deposits as a funding source, wholesale funding, could prove to be a more volatile source of funding that may accentuate regional banking fragility.

Moldovan banks demonstrate a high level of resilience due to their *funding structure*. They finance themselves with both depository funding and wholesale funding, but they rely mostly on depository funding. Deposits to liabilities ratio reached the amount of 85,4 percent at the end of 2013, much of which came from retail sources (table 1). Table 1 suggests that banks have a strong preference for maintaining liquidity. This is mostly due to the uncertain macroeconomic outlook and the recent history of banking sector instability.

Table 1. Funding structure and liquidity indicators of the Moldova's banking system, end of the year

Indicators	2009	2010	2011	2012
Deposits/Total Liabilities, %	80,1	82,0	82,4	83,1
Liquid assets ratio[3] (%)	38,3	34,2	33,2	32,9
Long term liquidity ratio[4]	0,60	0,67	0,69	0,70

Source: compiled on the basis of National Bank of Moldova data base, 2009-2013

However, the intermediation function of Moldovan commercial banks is undermined: although the level of liquidity in the system is one of the largest in the region they are very cautious in granting loans. The central issue of undermining is the mutual crisis of confidence: of the individuals and companies towards banks, and of commercial banks towards potential borrowers. It explains the conservative approach of local banks risk management, the reluctance in their lending activity and the maintenance of a high level of liquidity. This conservative approach has become even more acute during the recent economic crisis. It reveals that the lack of resources is not the essential issue of passive lending, and the high level of liquidity may be a consequence of this reluctance to credit activity.

Existing cross-country studies focusing on systemic stability find a positive effect of both *competition and concentration* on stability. As the study suggests, the positive effect of concentration on stability is likely to depend on better possibilities for larger banks to diversify risk. Although, both the country experiences and the academic debate suggest that concentration and competition have ambiguous effects on financial stability. The main findings of the existing studies focusing on systemic stability are:

-*Bank concentration***,** is (robustly) negatively correlated with financial crises. That is, more concentrated banking systems are less likely to suffer systemic banking crises. There are suggestive evidences [8] that concentrated banking systems tend to have larger, better-diversified banks, which may help account for the positive link between concentration and stability.

-The likelihood of a financial crisis is lower in countries where regulation allows more entry, foreign ownership and a wider range of activities, and where the institutional conditions stimulate competition. The *presence of foreign banks* in a region may impact the fragility of the regional banking system in different ways. On the one hand, a greater foreign bank presence may lead to greater banking efficiency and competition in the domestic financial system. On the other hand, foreign banks may provide a channel for cross-border contagion when they transmit shocks from one region to another. Empirical studies have shown that by improving overall operating efficiency, foreign entry helps create the conditions for better financial intermediation and long-term growth [5].

Table 2. Structural indicators of the Republic of Moldova's banking system, end of the year

	2010	2011	2012
Number of commercial banks	15	15	14
Foreign bank's branches	4	4	4
Total regulatory capital of the five largest banks by capital size/total banking regulatory capital (%)	62,75	63,4	66.5
Assets of the 5 largest banks by assets size/total banking assets (%)	69,26	70,1	70.7
Share of foreign investments in banks' capital (%)	76,96	74,0	73,4
Herfindahl-Hirschman Index:			
for credits	1264,0	1218,2	1360,3
for deposits	1341,4	1295,5	1344,9
for assets	1211,1	1181,3	1210,8

Source: own calculation on the basis of National Bank of Moldova data base, 2010-2013

[3] Liquid assets ratio: (Liquid assets/ Total assets (regulator's threshold ≥ 20%)
[4] Long term liquidity ratio: (Assets with a maturity of more than 2 years / Financial resources with a maturity of more than 2 years (regulator's threshold ≤1))

Concentration ratios of the Moldovan banking system for volume of assets, deposits, and credit range between 60 and 70 per cent for the largest five banks in the system (table 2), which – together with a Herfindahl-Hirschman Index of between 1,200 and 1,350 for three variables – suggests that Moldova has a moderately competitive system with oligopoly tendencies.

However, the largest three and five banks account for 75 and 90 percent of borrowers and depositors, respectively. Out of the 14 banks operating in Moldova, only five have more than 3,000 borrowers, while the rest caters to a limited number of borrowers and has larger exposures to a few select clients.

Regarding the foreign ownership aspect, while foreign participation is considerable (share of foreign investments in banks' capital recorded at the end of 2013 was 72,2 per cent), the majority of foreign holdings belong to investors that are not internationally highly-rated financial institutions, with a significant percentage of the owners being residents in offshore centers. While those owners who have more than a 5 percent stake in a bank have been mostly found to be fit and proper, the ability and willingness of such owners to provide know-how and capital or liquidity support is not obvious.

The *structural determinants* of the Moldovan banking sector fragility are:

(i)*Uncertainties in the ownership structure* still remain vulnerability despite considerable efforts by the NBM[5]. The process of clarifying the ultimate beneficial owners has not been completed. This raises concerns not only in relation to large exposures, connected lending, and loan concentration, but also in establishing whether the owner can provide contingency funds in case of a bank run or other stress situations. This unsolved issue determined the international organizations to reduce Moldovan banks' funding for the next years, which could have a negative impact on macroeconomic indicators.

(ii)*Foreign strategic investors*[6] *own less than 20 percent of the banking sector's assets*. The investments of first-tier banks in Moldova are welcome. The main arguments for this are: the implementation of highly efficient risk management practices within the local banking system and the injection of long term financial resources in the Moldovan economy. The supervisors should continue to exert pressure on the banks to consolidate ownership in individual banks through strategic investors.

In addition to the mentioned above vulnerabilities, there are *macroeconomic determinants* which can affect Moldovan banking system fragility:

1.*Excessive domestic liquidity*. Excessive domestic liquidity that could lead to inflation pressures and the possibility of unsound credit growth are the major, interlinked sources of vulnerability in the financial system. Simultaneously with enhancing monetary policy credibility by focusing on inflation and dealing with excessive domestic liquidity, the National Bank of Moldova (NBM) should make further improvements in its liquidity management capacity and transparency of monetary policy. **2.**Moldovan banking system is *highly sensitive* to macroeconomic changes and expectations, showing a *pro-cyclical character*. Given the pro-cyclical nature of the banking system, relatively favourable macroeconomic situation in Moldova recorded in 2013 was fully reflected in increased banking credit activity (fig. 4). While this credit growth is from a very low economic base, possibly reflecting catch-up growth, a continued increase will require

[5] The threshold for significant shareholding was reduced to 5 percent from the previous 10 percent. Banks are obliged to submit information on their shareholders exceeding this limit. In case of noncompliance, the NBM limits the operations of the banks that do not support the enforcement of the regulation. In addition, the NBM requires that information be provided on shareholders with holdings between 1-5 percent. This requirement attempts to prevent connected parties from circumventing the regulation by splitting holdings into portions not exceeding 5 percent.

[6] BC „Mobiasbanca – Groupe Société Générale" S.A., B.C. "EXIMBANK-Gruppo Veneto Banca" S.A., B.C. ProCredit Bank S.A., BCR Chișinău S.A.

careful attention to pre-empt deterioration in banks' credit portfolios.

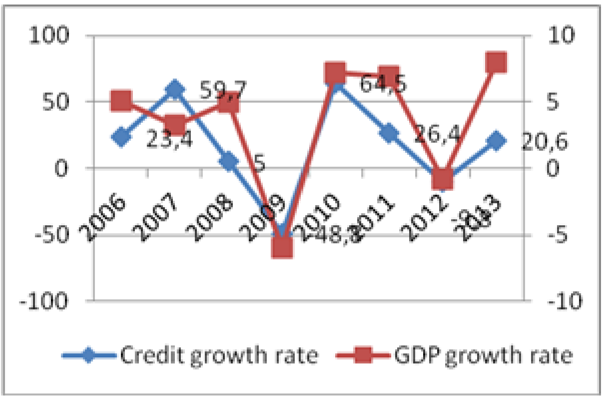

Fig.4. Credit growth rate and GDP growth rate in Republic of Moldova, %, 2006-2013

Source: compiled on the basis of National Bank of Moldova data base, 2009-2013

The danger is now that the banks' internal risk management systems are not good enough to pre-empt nonperforming lending. In this context, it would be useful for the NBM to develop an *early warning system* that would signal any emerging macro prudential risks to the financial system.

3.*Dependence on remittances* is one of the highest in the world (24,5 percent of GDP), which enhances the financial system vulnerability to potential volatility in these inflows (fig. 5). Moldova ranks 5th in the world in 2012 at this aspect.

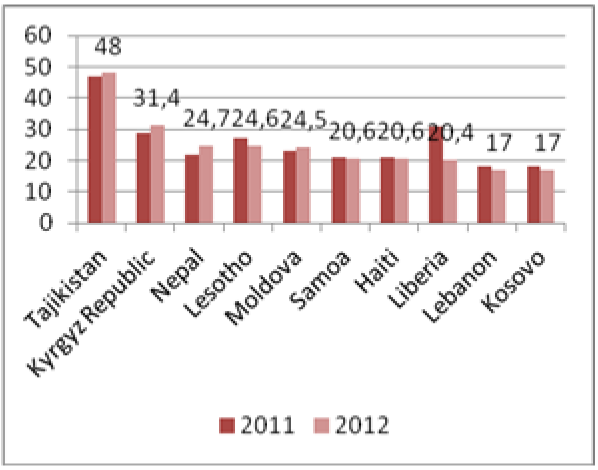

Fig.5. Top 10 recipients of migrant remittances as a share of GDP, (% of GDP)

Source: compiled on the basis of World Bank data, Migration and Development Brief, April 19, 2013

The inflow of remittances pumps liquidity into the system, fuelling inflation. The main fragility determinant is the dependence on the economic conditions of the main destinations for Moldovan emigrants (Russia and the EU). Should these conditions worsen, or enforcement of immigration and labor laws in those countries tightened, the inflow of remittances may slow down considerably. This would put the exchange rate under pressure and diminish the availability of financial resources for the financial sector. It could also increase credit risk, as part of bank lending is based on the borrowers earning/receiving remittances.

4.*Financial dollarization* increases the exposure of agents to exchange rate risk and can therefore become a potential source of macroeconomic and financial instability [15]. The driving forces for currency and asset substitution have generally been recognized economic instability and high inflation. Dollarization in Moldova has reached a high level (dollarization of deposits recorded 43,8 per cent in 2012) compared to other countries in the region. Remittances might have also induced financial dollarization Republic of Moldova as far as they are kept in foreign currency.

CONCLUSIONS

The Republic of Moldova's banking system has a high degree of capitalization and liquidity, factors which contribute and maintain the general stability of the entire financial system. Moldovan banks demonstrate a high level of resilience also due to their funding structure.

The main *determinants* of Moldovan banking sector fragility are the following:

-The intermediation function of Moldovan commercial banks is undermined: although the level of liquidity in the system is one of the largest in the region they are very cautious in granting loans.

-An alarming feature of the domestic banking sector is the high level of bad loans.

-Uncertainties in the ownership structure still remain vulnerability despite considerable efforts by the NBM.

-Foreign strategic investors own less than 20 percent of the banking sector's assets. The investments of first-tier banks in Moldova are welcome.

-Excessive domestic liquidity.

-Pro-cyclical character of the Republic of Moldova's banking system.

-Dependence on remittances is one of the highest in the world.

-Dollarization in Moldova has reached high levels.

-An appropriate institutional structure is critical to preventing banking fragility in developing countries and to reducing their undesirable effects if they should occur. NBM has made progress in developing and implementing a basic stress testing toolkit, although the lack of capacity to change stress testing scenarios to accommodate newly emerging risk factors, is vulnerability. More work is needed to identify additional risk factors and properly assess credit and liquidity risks. In this context, it would be useful for the NBM to develop an *early warning system* that would signal any emerging macro prudential risks to the financial system.

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