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REPUBLIC OF MOLDOVA

Selected Issues

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Approved by European Department

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FISCAL CONSOLIDATION AND STRUCTURAL REFORMS IN MOLDOVA[1]

A. Introduction

1. **Moldova faces fiscal sustainability issues as a result of pre-election spending hikes and the global economic crisis that necessitate a genuine fiscal consolidation plan.** Large fiscal imbalances arose as a result of sharp pre-election increases in wages and pensions and loss of revenue from the slump in economic activity. Given sizable fiscal adjustment needs, comprehensive fiscal consolidation plans need to be implemented and monitored to maintain confidence in the budget's ability to finance itself and—in the longer run—fiscal solvency. Failure to do so would destabilize expectations and weaken the effect of the budget support now being provided by the international community.

2. **High quality fiscal adjustment measures should be pursued including protecting vital public investment and well-targeted social benefits**.[2] Looking at countries' past adjustment experiences one can draw valuable policy lessons with regard to *good* quality measures to safeguard fiscal sustainability. Initially, a desirable consolidation plan would focus on expenditure rationalization in government wages, goods and services, and transfers while including important revenue-enhancing measures to broaden the tax base, reduce various exemptions and privileges, and improve tax administration. Sudden large public investment cuts (which may impede growth prospects), across-the board spending cuts (to the extent that they hurt critical spending on social protection or necessary maintenance) and distortionary tax increases should be avoided. Ultimately, securing efficient spending and taxation to promote inclusive growth should be key objectives.

3. **Measures, however, need to be complemented by structural reforms in a medium-term setting to secure durable results.** While specific short-term expenditure rationalization and revenue-enhancing measures are essential to stop further deterioration of Moldova's fiscal balances, they need to be complemented by targeted structural reforms to ensure durable solutions. Public sector wages and employment, education, pension and health care as well as revenue administration are key reform areas. A medium-term setting would further allow for some upfront costs to be incurred initially (e.g., costs in optimizing the school network).

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[1] Prepared by Philippe Karam (FAD).

[2] See IMF (2010a) and Everaert (2010, mimeo) for policy lessons and a practical guide on fiscal consolidation.

4. **Furthermore, implementation of difficult structural reforms would be justified given the considerable deterioration of the *structural* fiscal balance**.[3] Weak structural balances emerged in Moldova even before the crisis as a result of discretionary primary current spending drifting substantially upward and the near-elimination of the corporate income tax. With no adjustment, primary deficits would persist well after the automatic (de)stabilizing effect of the current crisis wanes off and the negative output gap closes.[4] In this regard, the significant but gradual and balanced structural fiscal adjustment under the ongoing IMF-supported program (2010–2012) guards against the risk of a deepening recession and an offsetting rise in cyclical deficit if output reacts negatively.

5. **Overall, the adjustments sought would include:** (i) rationalization of current primary spending and measures to increase the efficiency and impact of public sector services through public administration reforms while meeting critical infrastructure needs and better targeting social spending to protect the most vulnerable; (ii) tax policy complemented by tax administration measures intended to broaden the tax bases and improve compliance; and (iii) going forward, reforms aimed at keeping entitlements affordable to alleviate financing pressures on the social security system.[5]

The paper is structured as follows. Section II provides an overview of country experiences with large and successful fiscal adjustments to guide Moldova's adjustment plan. The remaining sections discuss in detail rationalization and reforms in specific areas of spending and taxation. Section III highlights the need for expenditure rationalization and reforms in public administration and the public sector more generally, emphasizing the wage system and the education sector, whilst protecting quality public infrastructure and targeted and affordable social spending. Section IV recommends specific revenue-enhancing measures with a focus on revenue administration reforms. Section V emphasizes medium- to long-term structural reforms focusing on long-run sustainability and reviews risks of rising spending pressures in the social security system related to demographics, pension benefits and health care. Section VI concludes by emphasizing the need for more efficient and equitable medium-term measures to complement short-term measures and highlighting key conditions and institutional approaches expected to contribute to sustained outcomes.

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[3] The *structural* budget balance estimates what the budget balance would be if the economy were operating at its potential. It helps to distinguish short-term budgetary changes driven by cyclical movements in the economy from those budgetary changes expected to persist over the medium-term.

[4] The extent to which some revenue losses are long-lasting and cannot be reversed quickly would also play a role in explaining a continuing deficit.

[5] To assess whether a government's fiscal structure is sustainable requires looking beyond projections of budget deficit and debt over a medium-term horizon to take into account the economic and fiscal implications of longer-term spending pressures (i.e., major demographic changes) that would strain government finances.

B. Fiscal Adjustment—Design, Country Experiences and Stylized Facts

6. **In helping to identify key policy tools for fiscal consolidation, a checklist built from past policy lessons can serve as a point of reference**. Issues related to the size, speed, timing and composition of fiscal adjustment are summarized in Box 1. This can serve as a framework to guide the Government in designing and implementing its own specific adjustment plan.

Box 1. Moldova: A checklist for design and implementation of a fiscal adjustment plan

- How *much* to adjust, under realistic budget assumptions? Carefully proposed fiscal adjustment plan would deliver a credible change in the fiscal flow balances while garnering public and markets' confidence.
- Is the *pace* of adjustment sufficiently ambitious to avoid reform fatigue? A balanced frontloading can leverage the post-crisis resolution to restore sustainability.
- Are the *constraints* from the *financing* side taken into account? The scarce financing has acted as a motivator to the size and speed of adjustment in Moldova. Liquidity pressures in 2009 called for relatively fast and large upfront adjustment.
- Is the *operational target* for the fiscal adjustment path *well-defined and well-understood*, and does it have adequate institutional *coverage*? An improvement in the annual overall fiscal balance as a target is easily understood. A structural adjustment target requires knowledge in how to separate cyclical and long-term movements in activity. Further, consolidated public sector coverage in Moldova is desirable and advantageous as it tends to avoid problems in intergovernmental fiscal relations.
- Does the *composition* of adjustment take into account the size of the public sector? Primary expenditures have increased by over 16 percent of GDP in the last decade, moving Moldova considerably up the spending scale relative to neighboring Central and Eastern European Countries (CEEC). With an oversized public sector, past experiences have emphasized consolidation on the expenditure side, relying on cuts in government wages and transfers.
- Are *high-quality* measures chosen for the adjustment? Good quality measures that foster long-term growth and efficiency minimize distortions, improve supply side incentives, and are permanent. Choosing such measures is especially important to support a 'new growth' model.

Other considerations:

- Are *external* factors (if existing) fully leveraged?
- Are supporting *institutional and structural reforms* in place?
- Do *sub-national* levels of government contribute to the adjustment?
- Are *distributional* effects of the adjustment taken into account?
- Is there a strategy to mobilize broad based *political and public support* and communicate about the adjustment strategy?

Based on G. Everaert (2010) "A Practical Guidance Note for Fiscal Consolidation", mimeo, IMF.

7. **Large and successful fiscal adjustments yielding sizeable improvements in the structural primary balances are common.** More than 20 advanced and 30 emerging economies have achieved improvements in their structural primary balances of at least 5 percent of GDP at least once in the last four decades (IMF 2010a, Tables 5a–5b). Table 1 provides a sample of neighboring countries with large adjustments followed in the past.

Table 1. Country Experiences with Large Fiscal Adjustments

Country (end year)	Size	*of which:* Revenue increase	*of which:* Primary expenditure reduction	Length (years)	Cyclically-adjusted primary balance	
					At end-year	Average over the five years after end of adjustment
Georgia (2004)	24.9	13.4	11.5	10.0	8.1	...
Slovak Republic (1995)	9.6	-2.8	12.4	3.0	2.3	-2.9
Hungary (1996)	9.3	-1.7	11.0	3.0	6.3	3.0
Bulgaria (1996)	9.1	-5.6	14.7	3.0	9.4	5.2
Romania (1984)	8.7	-4.8	13.5	5.0	7.2	5.4
Romania (1999)	8.4	2.8	5.6	3.0	6.2	0.5
Lithuania (2005)	7.0	1.8	5.2	6.0	0.4	...
Estonia (2003)	5.7	0.3	5.5	4.0	3.0	0.5
Ukraine (2000)	5.4	-3.3	8.7	3.0	4.7	-0.8
Mean	9.4	0.8	8.6	4.3	5.2	1.6
Median	8.6	-0.7	9.8	3.0	5.4	0.5

Sources: IMF (2010a), World Economic Outlook database and Fund staff estimates.

Notes: Cumulative change in cyclically-adjusted primary balance (CAPB) in percentage points of GDP for episodes lasting at least three years. In a given consolidation episode, the CAPB should not be reversed by more than 1 percentage point from one year to the next. The table lists largest adjustments per country, unless episodes for a given country are completely nonoverlapping.

8. **Policy lessons from these fiscal adjustments tend to focus on reducing public expenditures and balance a frontloaded and sizeable adjustment based on a multitude of factors.** The existing empirical literature generally advocates that current expenditure-based adjustments (especially government wages and transfers) have been more successful. Alesina and Perotti (1997) found that, in successful cases only one-fifth of the spending cuts affected public investment, whereas the largest cuts (accounting for half of the total) focused on wages and transfers. A role for revenue enhancement is also recommended in the early phases of adjustments as quality spending programs take time to establish or in cases where revenue can be raised from initially low levels. Tsibouris and others (2006) found similar consolidation patterns.[6] Other lessons advocate that the adjustment should not be too prolonged to avoid the risk of adjustment fatigue. Finally, factors ranging from external economic and domestic conditions, growth prospects supporting consolidation efforts,

[6] IMF (2010a), Box 2 provides a summary of the empirical literature regarding the composition of large and successful fiscal adjustments. See also IMF (2010b), Appendix Table 15—Experiences with large adjustments.

consistent monetary and exchange rate policies, and structural reforms have also been found to play a complementing role to the adjustment.

Thus, an appropriate mix of adjustment measures should in general reflect factors, such as (i) *the current revenue and expenditure levels*, where large expenditure slippages in the past, age-related spending pressures, and weaknesses in tax policy and administration would justify related expenditure- and revenue-based adjustments; (ii) *the size of the needed adjustment* where large fiscal gaps would need to be plugged with both revenue and expenditure measures; and (iii) *the impact of reforms on growth and equity* would favor a reform of inefficient, poorly targeted, and inequitable public spending while boosting measures to protect the poor and vulnerable.[7]

9. **Focusing on the specific conditions of Moldova, the scale and composition of fiscal adjustment would need to be tailored accordingly to ensure feasibility and durability of the plan.** In light of the moderate-to-high adjustment needs in Moldova where structural deficits have been built as a result of past expenditure slippages, it would be most advantageous to pursue expenditure measures initially, boosted by needed tax administration reforms.

Based on Moldova's historical experience, the estimated amount of fiscal action required should be achievable. Ambitious and attainable government policies should reflect consolidation priorities as well as their social, political, and administrative feasibility in delivering the required adjustment. While the specific short-term expenditure rationalization and revenue enhancing measures were essential to stop a deterioration of fiscal balances, the Government realizes the need to further integrate them into a medium-term fiscal framework to achieve more durable solutions. As such, structural reforms options in government wages and employment, education, social transfers and subsidies, and pension and health need to be evaluated and supported by policy actions to generate the desired fiscal savings.

C. Rationalization and Protection in Spending

10. **Budget consolidation forms the cornerstone of the recent IMF-supported program, with protection for public investment and essential social spending.[8]** Expenditure restraint is also echoed in the Government's Economic Stabilization and Recovery Plan. In what follows, we review the priority expenditure measures with an emphasis on fiscal impact and implementation and the tradeoffs involved while complementing them with reform options that extend beyond the short term. The areas of

[7] IMF (2010a), Table 2 illustrates the variation in countries' adjustment strategies based on these factors.

[8] The fiscal adjustment program is set out in the MEFP (IMF Country Report 10/32) and lays out in detail the strategy for deficit reduction over the course of the three-year program (2010-2012).

expenditure where savings are sought include the public sector wage bill and employment and goods and services. A reexamination of subsidies and transfers to households should provide insights for a new, enlarged and affordable means-tested social assistance scheme. Growth-enhancing capital spending should also be protected given the chronic development needs in Moldovan key industries and sectors. Other important structural reforms dealing with pensions and health are discussed separately in Section V given their longer-term focus.

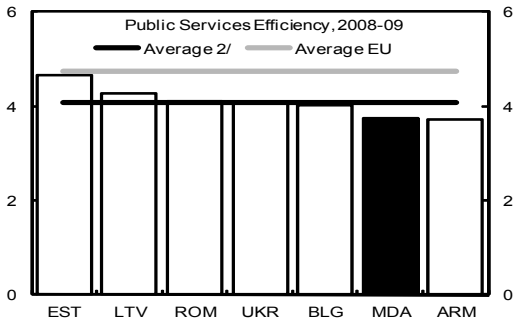
CURRENT SPENDING RATIONALIZATION

Public Administration and Public Sector Reforms—Emphasis on Wage System[9]

11. **Implementation of public sector reforms suffers from delays.** For instance, reform of the civil service salary system as a first element of reform of the salary system of all public sector employees got delayed by economic and political developments in 2009.[10] Against the backdrop of ongoing uncertainty in the economic environment due to the crisis and the political turmoil over the last two years, the Government is striving to accelerate reforms in this area without unduly stressing the limited resources at its disposal.[11]

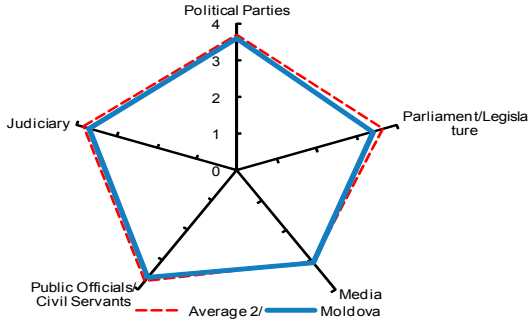
Despite the relatively low public administration (including general public services, public order and safety and defense) spending ratio (5.4 percent of GDP in 2009 compared to an average close to 9 percent in neighboring countries), there is a perception that the provision of public services is not efficient. This also extends to other general service areas such as

Table 2 . Wastefulness of Government Spending 1/



Source: World Economic Forum, *Global Competitiveness Report, 2008-2009*
1/ Survey with index ranging 1 to 7 with lower values indicating higher public servies inefficiency
2/ Includes Estonia, Latvia, Romania, Ukraine, Bulgaria,

Figure 1. Moldova: Corruption Impact on Public Services , 2009 1/



Source: Transparency International, *2009 Global Corruption Barometer*
1/ 1=not corrupt at all, 5 extreme corrupt
2/ Includes Belarus, Bulgaria, Armenia, Romania, and Moldova.

[9] This analysis draws from a forthcoming chapter on "The Fiscal Impact of Public Sector Wage Reforms", World Bank (2010b). The public administration system in Moldova includes State administration offices, autonomous Territorial Administrative Units (TAU), and two Security Funds.

[10] A new and simplified pay system for the public administration initiated by a Government's draft "Classification of Civil Service Positions and Grading System" is yet to be supported by a draft law on civil service remuneration, which was initially intended to be passed by the end of 2009.

[11] The World Bank (2010a) is supporting the improvement and the efficiency and management of public sector resources in key industry and social areas through its recent Development Policy Operation (DPO) to Moldova.

education, social protection, transportation and agriculture. The weak public service provision is corroborated by a relatively high level of wastefulness of government spending and corruption concerns in some areas of public offices, as shown in Table 2 and Figure 1.

12. **Within public sector services, spending on education receives the second largest share after social protection.** Education is a main area of concern as spending in this sector has risen substantially to 9.5 percent of GDP in 2009 (almost double a CEEC average of just over 5 percent) or roughly to 21 percent of total expenditures (compared to a CEEC average of close to 13 percent; Table 3). The fast increase in spending on education over the last few years despite a rapidly falling number of students suggests alarming, rampant, and entrenched inefficiencies in the sector (Table 4).

Table 3. Moldova and Selected Countries:
General Government Expenditures by Function, 2008

	Total General Government Expenditures	General Public Services	Defense	Public Order and Safety	Economic Affairs	Environment Protection	Housing and Community	Health	Recreation, Culture and Religion	Education	Social Protection	Social Protection - Old Age
					(Percent of GDP)							
Belarus	49.1	6.6	1.1	1.9	12.9	0.4	2.4	4.2	1.2	5.7	12.6	n.a.
Bulgaria	41.5	8.2	1.6	3.1	5.0	1.4	1.4	3.1	0.8	3.9	13.1	9.8
Estonia	39.9	2.9	1.8	2.7	4.9	1.1	0.6	5.2	2.3	6.7	11.7	6.5
Georgia	32.7	0.2	8.1	5.3	4.0	0.5	2.8	1.6	1.1	2.9	6.1	n.a.
Hungary	49.2	9.3	0.9	2.0	5.9	0.8	1.0	4.9	1.4	5.2	17.8	7.3
Latvia	38.8	4.0	1.5	2.3	6.2	0.9	1.3	4.8	1.8	6.5	9.4	5.6
Lithuania	37.4	3.9	1.4	1.9	4.5	0.9	0.4	5.0	1.1	5.8	12.4	5.7
Macedonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Moldova	**41.4**	**5.7**	**0.6**	**2.2**	**4.6**	**0.1**	**1.0**	**5.4**	**1.0**	**8.3**	**12.6**	**7.2**
Poland	43.3	5.5	1.4	2.0	4.9	0.6	1.1	5.1	1.3	5.8	15.6	9.4
Romania	37.6	3.8	1.5	2.3	6.2	0.5	1.4	4.2	1.0	4.8	11.9	n.a.
Slovakia	34.8	3.7	1.4	2.3	5.4	0.6	0.6	6.7	0.9	3.3	9.8	n.a.
Ukraine	45.4	3.2	1.2	2.6	5.7	0.2	1.0	3.7	0.9	6.3	20.6	8.6
Average	40.9	4.7	2.0	2.6	6.0	0.7	1.3	4.4	1.3	5.2	12.8	7.6
					(Percent of total general government expenditure)							
Belarus	100.0	13.4	2.2	3.9	26.4	0.9	5.0	8.5	2.5	11.6	25.6	
Bulgaria	100.0	19.8	3.9	7.5	12.0	3.4	3.4	7.5	1.9	9.4	31.6	
Estonia	100.0	7.3	4.5	6.8	12.3	2.8	1.5	13.0	5.8	16.8	29.3	
Georgia	100.0	0.7	24.9	16.2	12.3	1.4	8.6	5.0	3.2	8.9	18.8	
Hungary	100.0	18.9	1.8	4.1	12.0	1.6	2.0	10.0	2.8	10.6	36.2	
Latvia	100.0	10.3	3.9	5.9	16.0	2.3	3.4	12.4	4.6	16.8	24.2	
Lithuania	100.0	10.4	3.7	5.1	12.0	2.4	1.1	13.4	2.9	15.5	33.2	
Macedonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Moldova	**100.0**	**13.7**	**1.5**	**5.3**	**11.0**	**0.4**	**2.4**	**13.0**	**2.5**	**19.9**	**30.3**	
Poland	100.0	12.7	3.2	4.6	11.3	1.4	2.5	11.8	3.0	13.4	36.0	
Romania	100.0	10.1	4.0	6.1	16.5	1.3	3.7	11.2	2.7	12.8	31.6	
Slovakia	100.0	10.6	4.0	6.6	15.5	1.7	1.7	19.3	2.6	9.5	28.2	
Ukraine	100.0	7.1	2.6	5.7	12.6	0.5	2.1	8.2	1.9	13.9	45.3	
Average	100.0	11.0	5.3	6.6	14.4	1.8	3.2	10.9	3.1	12.6	30.9	

Source: Eurostat (countries in italic) and GFS.

Table 4. Moldova General Government Expenditure by Function, 2005 - 2009
(in percent of GDP and in percent of total expenditures)

	2005		2006		2007		2005 - 2007		2008		2009	
	% GDP	% in total	% GDP	% in total	% GDP	% in total	% GDP	% in total	% GDP	% in total	% GDP	% in total
Total	**37.0**	**100.0**	**40.2**	**100.0**	**42.0**	**100.0**	**40.0**	**100.0**	**41.6**	**100.0**	**46.0**	**100.0**
Social Protection	11.3	30.4	11.5	28.7	12.3	29.4	11.8	29.4	12.5	30.2	15.3	33.2
Health	4.2	11.3	4.7	11.7	4.9	11.7	4.6	11.6	5.4	13.0	6.5	14.1
Education	7.2	19.3	8.1	20.1	8.0	19.0	7.8	19.4	8.2	19.8	9.5	20.7
General public services	2.4	6.6	2.3	5.8	2.4	5.6	2.4	5.9	2.3	5.4	2.4	5.2
Economic affairs	5.2	14.1	6.1	15.1	7.0	16.7	6.2	15.5	5.5	13.4	4.4	9.6
Public order and safety, and defense	2.4	6.6	2.7	6.7	2.9	6.9	2.7	6.8	2.8	6.7	3.0	6.5
Other functional expenses 1/	4.3	11.7	4.8	11.9	4.5	10.7	4.5	11.3	4.8	11.5	4.9	10.8

1/ This includes environment protection, housing and community amenities, and recreation, culture, and religion.

In terms of *employment*, the largest shares of general government employment, excluding the Social and Health Funds' employees, are in education (62 percent) and public administration (21 percent)—Table 5. As a ratio to population, employment in education is high at 4.1 percent, compared to 2.7 in CEEC.

Table 5. Moldova Government Employment - Number of staff, 2005-2009 1/

	2005	2006	2007	2008	2009	
						Percent of Total
Total	**237,092**	**240,507**	**240,582**	**240,936**	**235,548**	**100**
General public service	15,834	15,173	15,448	15,738	15,246	6.5
External activity	336	352	378	357	402	0.2
National defence	6,632	6,661	5,929	6,865	4,626	2.0
Justice	3,747	3,798	3,922	4,026	4,085	1.7
Public order and national security	28,671	28,076	28,685	28,894	26,533	11.3
Education	143,265	148,429	146,691	146,246	145,079	61.6
Science and innovation	4,503	3,709	3,875	3,548	4,649	2.0
Culture, art, sport, religion and youth activities	9,737	10,044	10,842	10,786	10,973	4.7
Health	6,580	6,621	6,610	5,140	5,100	2.2
Social insurance and assistance	5,859	6,322	6,736	7,809	8,461	3.6
Agriculture, forestry, fishery and waterworks system	4,494	4,068	4,196	4,238	3,022	1.3
Envioronment protection and hidrometeorogoly	775	769	785	778	761	0.3
Industry and constructions	438	378	473	322	424	0.2
Transport, roads, communications and IT	120	102	95	123	134	0.1
Public utilities and housing	362	371	279	494	581	0.2
State reserves	198	198	190	147	155	0.1
Other services related to economic activity	390	369	367	336	381	0.2
Employment not covered elsewhere	5,152	5,068	5,083	5,091	4,936	2.1

1/ Number of staff does not include the staff employed in the Social Fund and Health Fund.
Employment in the public sector covers civil servants at state and local level (which according to the GFSM 2001 covers general public services (code 701), defense (code 702), public order and safety (code 703)), general service employees (including education, health, and culture) and contractual workers.

13. **The public sector *wage bill* in Moldova rose substantially in 2009 to an unaffordable level of close to 12 percent of GDP, making it the second highest in CEEC.** The average public sector wage had also grown by almost 20 percent in real terms, in sharp contrast with other countries in the region—this increase is clearly above the productivity growth rate with an attendant negative effect on competitiveness (IMF Country Report 10/32). Further, the public wage bill accounts for 26 percent of total general government expenditures, high compared to an average of 21 percent in selected CEEC (Table 6).

Table 6. Moldova and Selected Countries:
General Government Expenditures, Economic Classification, 2009

	Total General Government Expenditures	Wages	Goods and Services	Interest Payments	Subsidies and Transfers	Capital Expenditures	Net Lending	Social Assistance Benefits 1/
				(Percent of GDP)				
Belarus	34.6	8.5	5.8	0.8	11.1	7.3	1.1	0.9
Bulgaria	39.9	5.6	6.9	0.9	18.3	6.8	0.0	1.0
Estonia	49.5	8.4	20.8	0.1	16.6	3.5	0.0	n.a.
Georgia	38.6	5.8	6.2	1.0	10.8	8.0	0.3	0.3
Hungary	50.1	11.6	7.3	4.4	24.3	2.7	0.0	n.a.
Latvia	44.8	10.5	5.5	1.2	23.8	3.3	0.0	n.a.
Lithuania	46.1	12.7	5.5	1.3	18.6	6.6	0.0	3.6
Macedonia	34.3	5.8	4.1	0.6	20.4	3.4	0.0	n.a.
Moldova	**46.0**	**11.8**	**10.2**	**1.4**	**17.1**	**5.0**	**0.0**	**2.1**
Poland	46.8	10.0	8.4	2.4	19.2	6.8	0.0	0.3
Romania	38.1	9.2	5.5	1.2	17.9	4.3	-0.5	1.9
Slovakia	40.7	7.0	5.2	1.5	22.3	4.7	0.0	3.8
Ukraine	47.6	11.1	6.6	1.5	23.6	4.1	0.6	2.8
Average	42.6	8.9	7.3	1.4	18.9	5.1	0.1	1.8
				(Percent of total general government expenditures)				
Belarus		24.6	16.8	2.3	32.1	21.1	3.2	
Bulgaria		14.0	17.3	2.3	45.9	17.0	0.0	
Estonia		17.0	42.0	0.2	33.5	7.1	0.0	
Georgia		15.0	16.1	2.6	28.0	20.7	0.8	
Hungary		23.2	14.6	8.8	48.5	5.4	0.0	
Latvia		23.4	12.3	2.7	53.1	7.4	0.0	
Lithuania		27.5	11.9	2.8	40.3	14.3	0.0	
Macedonia		16.9	12.0	1.7	59.5	9.9	0.0	
Moldova		**25.6**	**22.2**	**3.1**	**37.1**	**11.0**	**-0.1**	
Poland		21.4	17.9	5.1	41.0	14.5	0.0	
Romania		24.1	14.4	3.1	47.0	11.3	-1.3	
Slovakia		17.2	12.8	3.7	54.8	11.5	0.0	
Ukraine		23.3	13.9	3.2	49.6	8.6	1.3	
Average		20.6	16.8	3.2	44.4	12.4	0.3	

Source: GFS
1/ This is a component of Social Transfers.

14. **This recent surge in wage bill is driven in part by a rapid increase in *salaries* on the backdrop of political promises.** The ratio of average public sector wage to GDP per capita—a key measure of affordability—has surged from 1.2 to almost 1.7 between 2008 and 2009 and is now well above levels observed in countries like Estonia, Latvia and Lithuania (close to 1.0). In most countries public sector wages are normally below the private sector level and Moldova is no different (the ratio was 90 percent in 2009) given higher job security in the public sector.

In the *education* sector, the combination of salaries paid and current employment levels is unaffordable presenting the Government with a clear if difficult choice of balancing between competitive salaries and current staffing. In terms of salaries paid, the concern lies in the recent and fast rise in wages (close to 30 percent between 2008 and 2009) with possible debilitating carryover effects. The education wage bill, in percent of GDP and as a ratio of total general government expenditures reached 6.1 and 13 percent in 2009, or 52 percent of the total general government wage bill.

15. **Relatively large *employment* in the public sector, education in particular, would also explain the surge in the wage bill.** Such an overstaffing problem represents a structural deficiency in delivering services. Public sector employment stood at 6.6 percent of population in 2009 (Table 5). The proportion of public to overall employment is also high at 21 percent. In particular, the Moldovan education system exhibits very unfavorable structural characteristics, suggesting apparent excess employment:

- A drastic reduction in the number of students was not accompanied by staff reduction or school optimization: while the number of students decreased by 27 percent in 2007–08 compared to 2002–03, the number of schools declined by only about 3 percent over the same period;
- A student/teacher ratio as low as 13 compared to a European norm of 18;
- An excessively high ratio of non-teaching to teaching staff—the average ratio is 37 percent which is well above a European average of 27 percent;
- Lack of financial incentives to reduce staffing levels.

16. **The Government aims to bring the wage bill back to an affordable ratio of below 10 percent relative to GDP by 2012-13.** This level has long been considered both adequate and necessary to protect critical current non-wage spending and public capital expense. It would also bring Moldova closer to the CEEC average of just below 9 percent (Table 6).

17. **Short-term wage bill measures implemented in 2009 contained the wage bill, but supporting longer-term measures to improve the efficiency of the public sector remain to be developed.** The main measures range from modifying and postponing unaffordable wage increases, keeping budgetary sector employment to efficient levels, elimination of permanent vacancies, and continuing with the optimization of the number of employees in the budgetary sector. While these measures did set the wage bill on a declining course, the Government still faces a challenge linking those measures to much-needed medium-term structural reforms. The root causes of the imbalances, which are predominantly linked to insufficient control over employment levels, are yet to be addressed. Another issue of concern to the Government is how to maintain competitive wages to attract qualified staff which would contribute to the efficient and effective delivery of public services.

18. **Public administration and civil service reform to sharply improve delivery of public sector services should be a policy priority.**[12] Previously proposed policy suggestions by the World Bank should be pursued further: (i) finalize a civil service remuneration system, (ii) review the effectiveness and efficiency of service delivery systems that are big spenders (i.e. education) and develop a strategy for streamlining service provision, and (iii) introduce systems of internal controls in public administration entities to raise efficiency and limit corruption.[13]

[12] As part of the Government's continuing efforts to reform the civil service, a new performance-based wage system for public sector employees will be introduced in 2011, once the pressure of the crisis begins to unwind.

[13] For a detailed set of initiatives to help the government improve the attractiveness and performance of public administration refer to World Bank (2009a).

19. **While the public sector wage system reform has in recent years emerged as one of the key issues in the public administration reform process, significant work remains to be done**. The composition of the salary system is inadequate, non-transparent and quite complicated. In this regard, the competitiveness of remuneration across job categories should be made more consistent and, ideally, the "years in service" element should play less of a role in determining wages in favor of human capital requirements to perform the job (i.e., difficulty and complexity of the work, particularly for public health employees).

20. **While reducing identified excess employment in education remains politically challenging, the World Bank's comprehensive work in this area puts it in a position to provide concrete measures.** A recent World Bank pilot study in two rural districts has sought to tighten monitoring and enforcement systems in the overall public education employment registry as a way to identify areas of excess hiring. In conjunction with the Ministry of Education's optimization strategy (incentivizing class and school mergers), the World Bank's specific proposals (backed by a Government approval) can help accelerate the ongoing school network optimization activities. An estimate of the fiscal impact of these concrete measures should feature in the Government's medium-term expenditure framework (MTEF), to improve expenditure planning over the medium-term horizon.

21. **Short-term measures should be supported by additional medium-term and long-term measures to improve the efficiency of the public sector.**

- *Rationalize the structure and improve the efficiency of government operations*. A comprehensive review of the size, functions, and staffing and payment structure of all government organizations should help identify further areas of employment rationalization and better service delivery.
- *Outsourcing non-core functions.* Outsourcing of non-civil servant positions in non-core functions such as transport, security and maintenance could be considered. Looking forward, functions in finance, accounting, and information technology and communication (ITC) could also be outsourced in an efficient manner. The source of cost savings would be the increased efficiency with which the private sector can implement these functions.[14]

Goods and Services

22. **Reduction in budget allocations for low-priority goods and services would also bring substantial fiscal savings.** Spending on goods and services reached 10.2 percent of GDP in 2009 (an increase of almost 30 percent from an average of 7.9 percent of GDP over 2001–08), substantially larger than a CEEC average of 7.3 percent of GDP. While some

[14] The Government has already begun to outsource selected services currently provided by public authorities. Looking forward, a full privatization of these operations should be considered as a medium-term objective.

across-the-board cuts have been implemented, caution is needed in safeguarding critical spending on maintenance and inputs for line ministries.[15] The Government should continue soliciting ministerial spending reviews to help it identify areas for efficiency savings, complementing it further with sector-wide spending reviews. Having averaged a growth rate of 26 percent a year between 2001 and 2008, the rate of growth of this expenditure component has moderated to close to 4 percent in 2009, in pace with the economy's essential spending needs.[16]

23. **To avoid arrears, controls of the procurement process in goods and services with a view to prevent the assumption of unaffordable commitments should be enhanced**. The authorities' program calls for a substantial reduction in allocations for low-priority goods and services. To avoid higher-than-budgeted spending on goods and services, reforms in procurement and internal financial control, to be introduced by end-2010, will allow reining in spending in 2011 and beyond, keeping it in line with the economy's essential spending needs. Moreover, closely relating the budgeted allocation of funds for goods and services to final spending can be achieved by strengthening the communication between the MOF and the spending line ministries during the budget process. The ongoing gradual move from an input-based line item budgeting system to a results-based programmatic approach (which will apply to the whole budgeting framework and not just to goods and services) would help in this regard as well.

PROTECTED AREAS OF SPENDING

Public Infrastructure Spending

24. **Capital spending in relation to GDP which has been rising since 2001 declined for the first time in 2009**. Capital spending had averaged about 16 percent of total government spending in 2000–08 or 6 percent of GDP before falling to 11 and 5 percent respectively in 2009 (in close comparison to CEEC averages of 12.4 and 5.1 in 2009). This level is insufficient given Moldova's large development needs.

25. **Although capital budgeting continues to improve from a budget planning perspective, weaknesses in the monitoring and evaluation of approved projects remain.** While the annual budget documentation contains detailed lists of proposed investment projects and related maintenance expenditures, considerable fragmentation remains in the institutional framework with a possible overlap in functions. Different units are responsible for donor-financed and budget-financed projects, complicating the planning process. On

[15] However, imposing some general, across-the-board saving targets may facilitate the political acceptability of reform by requiring all ministries to contribute to the adjustment.

[16] Increased utility bills and slower-than-expected progress in procurement and internal financial control reforms had necessitated an increase in spending on goods and services in 2010.

evaluation and monitoring, it appears that the responsible division in the MOF dealing with capital investment financing faces capacity constraints and seems to focus its attention on ensuring financial compliance rather than progress in achieving project objectives, as routine progress reports are lacking.

26. **The road maintenance budget during 2009 was well below the minimum requirement to avoid further depreciation.**[17] The reform of road maintenance financing and a large increase in funding for road maintenance have been conditions for road investment financing by external partners for some time.

27. **More generally, recent underspending in new construction and maintenance would require timely mobilization of investment funding.** Overall capital spending was revised downward from an initially approved ratio of over 7.5 percent relative to GDP in the 2009 Budget to 5 percent. Over the medium-term, the policy target is to bring this ratio back up to 7.5 percent of GDP beginning in 2012. There is a perception that critical infrastructure needs are largely unmet and that state assets, roads in particular, have suffered massive physical deterioration. As such, sustained long-term economic growth and social development is at risk unless the road network is rehabilitated and maintained (World Bank 2010a). In response, the Government has recently mobilized the investment funding to rehabilitate the road network from external sources (including MCC), and, in parallel to mobilize the funding needed for the maintenance of roads.

28. **As for areas of further improvement, project prioritization, monitoring and evaluation processes associated with the capital budget should be targeted**. The establishment of a single unit to manage investment project planning would go some way to resolving the institutional fragmentation problem. Furthermore, a redirection of the focus on monitoring routine progress in achieving project objectives should be pursued as capacity gets built.

Social Assistance

29. **A key reform objective pursued by the government has been the improved targeting of social assistance benefits to ensure that they reach the most vulnerable**. This required moving from an old categorical system to a proxy means-tested scheme. The urgency to accelerate this program was recognized in IMF Country Report 10/32 in light of the large adverse social consequences of the global economic crisis on the poor. The phasing

[17] The Government delayed implementing its own part of the Land Transport Infrastructure Strategy (LTIS). Coupled with the political uncertainty, this led external partners, including the World Bank, EBRD, EIB, MCC and the EC, to postpone disbursement of funds in 2009.

out of the nominal compensation scheme is intended to reduce leakages[18] and free up additional fiscal resources to finance poverty-targeted and quality social assistance.

30. **The Ministry of Labor, Social Protection and Family has prepared the analytical basis and the infrastructure to support the introduced new scheme.** As such, steady work continues towards achieving a take up rate of at least 2/3 by the end of 2010.

31. **Some flexibility has been built in the budget to allow for improvement in the social assistance under strenuous conditions affecting the poor.** Energy allowances have recently been allocated to low-income beneficiaries while at the same time ensuring the fiscal neutrality of this measure as additional expenses would be covered by newly committed donor funds. Means-tested heating subsidies beyond 2010 would be consistent with the new targeted social support scheme.

D. Tax Structure and Tax Policy Reforms

32. **Revenue performance looks reasonably sound and the tax system does not appear to be overly burdensome.**[19] The sound performance is due in most part to high revenue from VAT, especially VAT on imports; however, the high VAT collection is in part due to unfavorable treatment of imports of investment goods. On the other hand, both personal and corporate income taxes (PIT and CIT) perform below average (Table 7)—the adoption of a zero-rate on reinvested profits in 2008 reduced CIT revenues to 1.1 and 0.7 percent relative to GDP in 2008 and 2009, further widening the gap relative to other countries.

The current challenge is one of regaining some of the revenue lost due to crisis and securing more stable sources of revenues, with a tax policy focused on broadening the tax base by reducing exemptions and raising excise rates closer to those in neighboring countries.

[18] Based on 2007 World Bank analysis of households surveys, more than 60 percent of social assistance payments 'leaked' to middle and upper (consumption) expenditure quintiles.

[19] The labor tax wedge was assessed to be low compared to other countries in the region, based on some previous IMF calculations.

Table 7. Moldova and Selected Countries: Tax Revenue Breakdown, 2009

General Government (In percent of GDP)	Total Taxes	PIT	CIT	VAT	Excises	Social Security
Estonia	35.0	5.7	1.9	8.8	4.6	7.3
Latvia	26.5	5.5	1.5	6.0	3.8	8.8
Lithuania	30.2	6.7	2.6	8.0	2.9	9.3
Slovakia	29.0	2.9	3.0	6.8	3.5	11.8
Romania	27.8	3.8	2.7	7.0	3.2	9.7
Moldova	**32.2**	**2.4**	**0.7**	**12.7**	**2.6**	**9.3**
Macedonia	26.3	2.1	1.1	8.6	8.6	8.8
Ukraine 1/	35.6	4.9	3.6	9.3	2.4	11.1
Russia	31.2	4.3	3.2	5.3	0.9	5.4
Georgia	24.5	6.2	2.9	11.4	2.9	0.0
Average	29.6	4.7	2.5	7.9	3.7	8.0

Source: FAD Tax Revenue Database, and IMF Staff Calculations.
1/ Social Security: Payroll taxes and other Pension Fund own revenues.

33. **Regarding tax policy, the authorities' program relies mainly on adjustments in excises toward the levels in neighboring countries and a reinstatement of the corporate income tax (CIT) from 2012 onwards**. The increase in excise rates on alcohol, cigarettes, and fuel in 2010 is expected to yield about ½ percentage points of GDP on a permanent basis. The reinstatement of the corporate income tax from 2012 on—with a low single rate and a broad, uniform base across sectors and regions—is necessary to complete the process of structural fiscal adjustment and diversify the tax base, while allowing the effects of the crisis on corporate profitability to dissipate.

34. **While the fiscal adjustment plan has thus far focused on expenditure measures, reforms in tax administration should now be emphasized.** Given the uncertainty about the growth strength of the Moldovan economy over the medium-term and its potentially large variation effect on annual budgetary revenues, expenditure-side measures were primarily targeted. Improvements in tax administration are however essential in the context of restoring long-term fiscal stability, increasing economic activity, and providing an attractive environment for foreign investment. The Government expects reforms in tax administration to generate additional receipts to help in partially filling the fiscal gap.

35. **Progress in tax administration reform slowed down significantly in 2009**. Partly due to the political turmoil in Moldova, substantive modernization objectives of reforming IT systems and organization structures as well as putting in place better tax compliance management systems got delayed—the latter is hampered by the State Tax Inspectorate's (STI) weak programs for audit and taxpayer services and a lack of a strategy to address major risks to revenue performance.

36. **Taxpayer compliance problems, if not treated in time, may lead to revenue losses in addition to those driven by the economic downturn**. Heightened compliance risks in the current environment stem from extraordinary financial pressures on businesses and other taxpayers. The economic downturn has directly affected their viability, influencing tax compliance behaviors with regard to timely filing and payments, and correct declaration of income—a large increase in tax arrears in 2009 serves as an example. Other tax avoidance problems are underreporting of wages for social security contribution purposes with lower contributions collected as a result.

37. **Assisting the tax administration in its efforts to contribute to resolving the fiscal gap in Moldova, a recent IMF technical assistance mission identified the following reform priorities over the next 2–3 years**: (1) modernization of the IT systems, critical for day-to-day work and the prospects for increasing taxpayer compliance and revenue collections; (2) modernization of STI's organizational structure, and (3) improving taxpayer compliance. To achieve these objectives, the mission recommended:

- Actively assessing major risks to revenue and prioritizing and allocating resources to address those risks. An agency level compliance strategy that addresses the needs of each key market segment and explicitly protects major revenue tax bases would provide the needed direction. This should be done while balancing between tough enforcement and soft measures in support of businesses hit hard by the recession.
- Establishing a *Risk Management Unit (RMU)* and tasking it with coordinating the STI effort to develop and implement a *taxpayer compliance strategy* to ensure that resources are utilized on measures that provide the maximum impact on facilitating compliance. Modern risk management concepts developed in EU and OECD should be used as a guide while deploying varying measures to mitigate the identified risks depending on the underlying reasons for non-compliance—audit, taxpayer education, law and procedure changes, IT improvements and media coverage as possible actions.
- Backing up the compliance program by effective and strong *risk mitigation tools*, including audit programs, large taxpayer programs, arrears collection programs,[20] and taxpayer service programs.
- Garnering significant donor support for a major IT reform program, development of important management tools with regard to compliance risk management.

E. Medium- To Long-Term Structural Reforms Enhancing the Long-Run Sustainability of the Social Security System

Pension System[21]

38. **Improvement in spending trends is essential to anchor long-run sustainability and prevent deterioration in fiscal balances in the future.** In this regard, keeping social security financing pressures in check is key. The near 20 percent increase in pension

[20] At 21 percent of tax collections, the current level of tax arrears (2.2 percent of GDP) is not excessive compared with other transition countries, particularly when taking into account the effect of falling tax revenues as a result of the global crisis. However, the debt has built up in a relative short time following the 2008 tax amnesty when most debt accumulated prior to 2007 was written off. In response, recommendations are made to allow the application of deferment and installment arrangements in cases of inability to pay the debt in full.

[21] This section benefited substantially from World Bank papers (2009b, 2010b), and from discussions with World Bank and Ministry of Labor, Social Protection and Family staff on technical issues. Recent basic pension data is attached in Appendix I reflecting official data as of April 2010.

expenditures in 2009 is alarming and the medium-term effect of potential similar raises in benefit rates on the system's financial balance can be detrimental unless offset by other reforms. In keeping with responsible fiscal planning, challenges over the next few years and over the long-term should be addressed.[22]

39. **The pension system seems to be fiscally sustainable but socially unsustainable in light of the low level of pension benefits.** This conclusion was reached based on a World Bank's quantitative analysis of the status quo with no reforms. The same study also presented alternative key parametric reforms with different implications on the pension financial balance—this included changing the valorization[23] cum indexation pattern, reducing pension accrual rate, increasing retirement age followed by equalization across genders and groups, and improving contribution collections while increasing the required contributions for the farmers and the self-employed.[24]

40. **In 2008, the government drafted a set of strategy documents on further pension system reforms intended to complete an unfinished 1998 pension reform agenda.** The objectives were to strengthen the link between benefits and contributions paid, unify the contribution rates, reduce existing privileges, and tighten disability pension rules. The documents were not finalized and concrete policy measures were not specified.

41. **Phasing out early retirement privileges in civil service and the judiciary is an important part of reforming the social insurance system and improving its financial sustainability.** These measures, which are part of the IMF-supported program, entail raising retirement age for these occupations by 6 months every year, until it reaches the regular retirement age.[25]

42. **While the pension system ran only moderate deficits over 2005–08, the financial gap surged in 2009 creating an additional funding pressure to the State budget**. State

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[22] According to OECD (2009), "... long-term economic and fiscal projections reports, prepared by members to assess fiscal sustainability, offer invaluable signposts to help current government to respond to known fiscal pressures and risks in a gradual manner, earlier than later, and help future governments avoid being forced to adopt sudden policy changes ...".

[23] World Bank (2009b) "... Old age benefits amount is calculated as pension base (average gross wage earned on the basis of all working years) multiplied by the sum of annual accruals. The pension base for the period *until 1998* is *valorized* with wage growth until the year preceding the year of retirement. As for the wages earned *after 1999*, the pension base is calculated as the average of nominal wages without *valorization* (indexation of wage history) by either wage or price inflation in that period." Non-valorization is followed in Moldova only.

[24] See World Bank (2009b).

[25] The current retirement age for judges and prosecutors is 50 years, while for civil servants it is 52 years for women and 57 years for men. The regular retirement age is 57 years for women and 62 years for men.

budget transfers increased sharply in percent of GDP in 2009 and are projected to edge even higher in 2010 (Table 8).

Table 8. Pension Contributions and Expenditures

(in percent of GDP)

	2004	2005	2006	2007	2008	2009	2010
Contributions 1/	6.4	6.6	6.8	6.8	7.2	7.8	7.3
Expenditures	5.9	7.2	7.0	7.0	7.2	9.1	8.9
Overall balance	0.5	-0.5	-0.1	-0.2	0.0	-1.3	-1.6

Source: Government of Moldova, National Social Insurance House.
1/ Based on Staff estimates of an effective 'pension' contribution rate.

Both recession-related and policy-induced factors contributed to the worsening financial gap**.** Recession-related effect on pension contributions under no changes in the compulsory (pension) contribution rate contributed to a sharply reduced own revenues growth in 2009. But discretionary expenditure policies were primarily responsible for the weakening balances. The indexation rule (a Swiss formula) allowed for a large increase in pension payments in 2009 reflecting sharp economy-wide wage increase in 2008, but some additional top-up in 2008–09 also contributed to this increase.[26] Other factors and policies pertaining to the structure of the system (i.e, minimum pension rates, pension benefit rates, treatment of past valorization) have also played a role.

43. **Based on pre-crisis economic developments, projections of a no-reform scenario had shown near-term balances in the pension scheme and long-term financial surpluses (World Bank, 2009b)**.[27] Model-based simulations had pointed to a positive balance in the pension system that emerges after 2020 and grows constantly in the long run due mostly to a rapid but socially unsustainable decrease in the average benefit replacement rates. Aside from the undesirability of a sharp fall in the replacement rates, these calculations need, however, to be revised to reflect developments in 2009 as well as take a critical look at two important underlying assumptions behind the gradual growth in pension revenues—namely, an expected gradual increase in the size of the workforce (while it has been falling for a number of years) and a faster real wage growth than real GDP in the post-recession period (an average over the past 4 or 5 years might be more appropriate). The opening gaps between contributions and expenditure (Table 8) suggest that the overall effect of such an update could be significant.

[26] The indexation formula is based on last calendar year averages of wages and inflation (2008) to estimate pension entitlements for the period running from April to March of subsequent year (April 2009-March 2010).

[27] The 2009 simulations did not reflect the full impact of the crisis, and as such would be revised to include the post-crisis developments. This said, these projections should not be interpreted as predictions of the most likely future outcomes. Rather, they are simply a set of 'what if' scenarios that attempt to illustrate and quantify the implications of leaving the Government's current pension structure unchanged over time.

44. **The challenge in reforming the pension system resides in raising the existing low benefit rates without opening a durable financial gap.** Although currently age-related spending pressures appear manageable, the challenge is how to improve the efficiency of this spending and program design at an early stage to ensure that potential pension benefit improvement do not endanger fiscal sustainability over the longer-term.

45. **Relatively large pension spending, expected deterioration in pension system dependency ratio and low benefit rates are sources of financing pressures.** *Pension spending* ratcheted up to 7.2 and 9.1 percent of GDP in 2008 and 2009 more than double the 1999 level (4.4 percent of GDP) and is currently above the 2008 CEEC median of 7.3 percent of GDP. The *pension system dependency ratio* (defined as the ratio of pensioners to insured individuals/contributors) is expected to rise from 59 pensioners per 100 insured persons currently in 2008 to 86 by 2050 due to the declining trend in contributors and early retirement (World Bank, 2009b). On the other hand, Moldova's *pension benefit rates* are low but comparable to other countries in the region (Table 9) with an average pension (old-age) at 26.4 (27.4) percent relative to gross wage (35.1, on a net basis, albeit below an ILO standard of 40 percent). This has reflected mainly the non-valorized pension base after 1998 which kept pension costs low but made benefits socially inadequate and evidently in need for enhancement.

Table 9. Moldova and Selected Countries: Replacement Rates
(mid 1990s and mid 2000s)

Country	Gross replacement rates			
		Year		Year
Estonia	25.0	1995	28.8	2005
Latvia	62.6	1994	33.1	2005
Lithuania	n.a.	n.a.	30.9	2005
Bulgaria	31.0	1995	42.9	2004
Romania	43.1	1994	27.6	2005
Moldova	**44.9**	1995	**26.4**	2008
Average	40.4		32.7	

Source: World Bank (2008), Working Paper No. 129.
Note: Rates reflect general average of pension benefits in percent of gross wage.

46. **Numerous challenges and flaws remain in the pension system.**

- The pension system underperforms in terms of benefit adequacy primarily the result of a lack of valorization of past incomes for new retirees in the pension formula—as a partial and temporary offset, the accrual rate has been raised against the recommendations of the 1998 reforms.
- In terms of compliance and collection, benefits are determined based on declared wages rather than paid contributions which has weakened tax compliance and created a tax avoidance problem.
- The incentive to participate and contribute to the system remains weak.
- Ad-hoc regulation of the pension system through the annual Budget law as well as introduction of benefit increases regardless of the indexation rule may, over the long-run, threaten the system's fiscal sustainability.
- Suspension of retirement age increases in 2003 and the lack of action following the Government's 2008 draft strategy documents leave much work to be done.

47. **Pension reforms should aim to at least halt the decline in the replacement rate while safeguarding the sustainability of the system.** In this regard, maintaining a reasonable rate of return on pension contributions and an adequate coverage in a manner that does not generate fiscal imbalances is key. While raising statutory retirement should form the starting point of the offsetting reforms, other measures in improving financial balances can be pursued. And while some measures are of a short-term nature, others deal with longer-term structural impediments and require time to implement.

48. **Short-term measures can generate relatively quick fiscal savings.** For instance, strengthening incentives in the pension system can be pursued through a tighter link between contributions and benefits, avoiding contribution amnesties, improving compliance through adequate contribution enforcement[28], and contribution levels for self-employed and farmers.

49. **On the other hand, addressing structural problems are essential to secure fiscal and social sustainability in the long-run.** *Valorization of past earnings* needs to be reestablished in the pension formula, buttressed by an adequate indexation pattern. *Pension disability* needs to be redefined in compliance with the ILO definition (this is already one of the declared Government measures) to stimulate to the extent possible employment of disability pension beneficiaries.[29] *Ad-hoc pension increases* need to be stopped—beginning in 2004 and recently, exceptional measures have contributed to a more than doubling of the pension system costs over the last decade. Numerous emerging *privileged pension schemes* with large differences in benefits from the general schemes should be eliminated. Last but not least, *retirement age* should be gradually increased for both genders to 65/60 and then equalized at 65.[30] This raising and equalizing policy has been launched by most countries (see World Bank (2009b) for EU10 countries and IMF (2010b) for G20 countries)—as life expectancies at birth continues to improve, the retirement age in many countries has increased, a measure that would help pension finances by increasing the years of contributions and reducing the number of years of pensions in payment.

50. **Updated pension reform simulations address both the short-term and medium-term challenges facing the pension system.** Proposed pension reforms were discussed in

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[28] Compliance with contribution requirements is low. Average covered wage in 2008 (as per NSIH) stands at 75 percent of average wage which suggests an underreporting of wages for social contributions purposes.

[29] Disability beneficiaries have increased as a share of total pension beneficiaries with a current ratio close to 21 percent, up from 16.4 in 1999. This is well above the EU average (11.5 percent), but comparable to other transition countries in the region.

[30] With men's life expectancy at only 64.6 at present, equalization can first be targeted at 62 years but later raised to 65, consistent with the anticipated increase in life expectancy (69 years for men by 2025).

detail in World Bank (2009b).[31] Here we report an update of the quantitative results of representative reform options while reflecting important data and assumption changes pertaining to the post-crisis period (Table 10). Such reforms cover key changes with respect to valorization of wage history, raising retirement age, improving compliance and collection, and minimizing the redistributive nature of the system in an effort to strengthen contribution incentives by all groups.

Table 10. Moldova: Pension Reform Scenario Simulated with the Pension Model

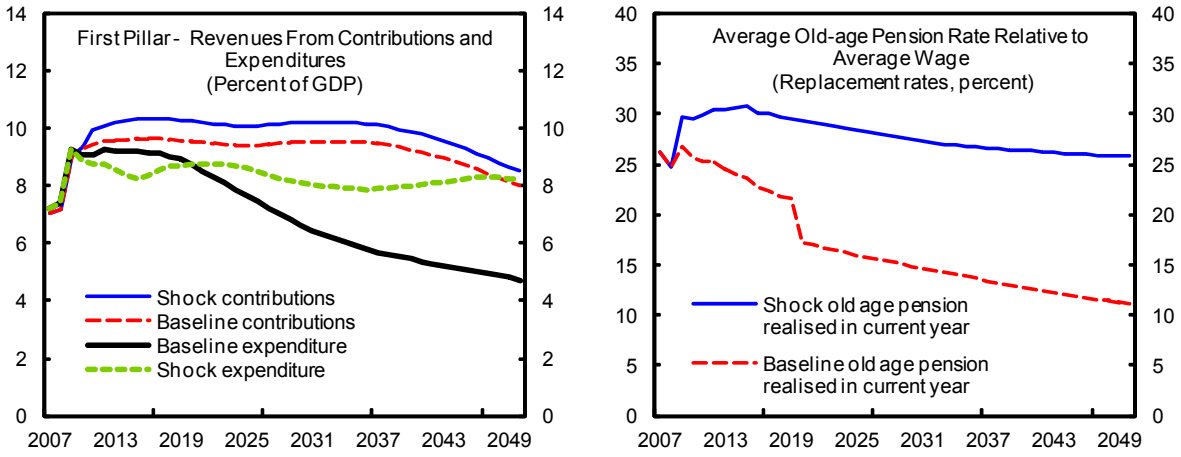
Scenario	Valorization of past wages	Benefit indexation	Accrual rates	Retirement ages	Collection Rate	Minimum pension indexation	Contribution for self-employed and farmers
Baseline	No valorization of past earniongs	50% wages, 50% inflation	1.4% up to 30 years of service, 2% beyond 30 years	62/57 years for men/women	93.0	50% wages, 50% inflation	Based on a flat rate
Reform Scenario	**50% wages, 50% inflation**	50% wages, 50% inflation	**Reduced by 20% from Baseline (1.12% up to 30 years of service, 1.6% beyond 30 years)**	**65/60 years for men/women**	93.0	50% wages, 50% inflation	**Self-employed pay contributions based on average wage; Farmers pay contributions based on 50% of average wage**

Source: World Bank and Ministry of Labor, Social and Family Protection
Note: Parameters different from Baseline in the reform scenarios are marked in bold.

Pension reform scenario. *Valorization* is based on a 50–50 wage-price formula, with a stronger (relative to baseline) wage component resulting in larger replacement rates, but also higher pension expenditures and financial gap relative to GDP. If combined with a Swiss type (or a full wage) *indexation* benefit formula, full wage valorization can result in a fiscally unsustainable system requiring needed offsetting reforms. *Accrual rate* is reduced by 20 percent in conjunction with reinstalling valorization (in the past high accrual rates were used as an offset to a lack of valorization) to help improve fiscal sustainability. Raising *retirement age* has a substantive offsetting effect to raising replacement rates, with a huge expected positive impact on the financial balance—legislated increase in the statutory retirement age (gradually in 6-month increments) raises revenues from longer working-age population years of services and postponing benefit payments. While higher *compliance and collection* rates may further improve financial balances in a meaningful way, in the chosen reform scenario we opt for a more conservative (baseline) contribution collection rate while allowing for its increase for the self-employed and the farmers. A sustainable financial balance is observed along with an improvement of pension social sustainability compared with a baseline of deteriorating replacement rates. The figures below reflect the improved social sustainability conditions post-reform relative to the baseline scenario (Replacement rates: average old-age

[31] Among the previous results reported, *raising retirement age* significantly increases the sustainability of the pension scheme (expenditures would remain below 8 percent of GDP over the medium- to long-run), and *higher compliance and collection* (including systemic measures to improve incentives to participate in addition to policing and enforcement measures) also improves the pension balance substantially.

pension relative to average wage) while maintaining fiscal sustainability as depicted in the positive financial gap over the next 40 years (Financial balance of pension fund is the difference between the reported revenues from contributions[32] and expenditures components).



Source: IMF staff calculations.

Health Care System

51. **Public health spending from the NHIC has risen sharply as a share of GDP between 2004 and 2009 (Table 11)**. Other health-related spending outside NHIC and by the MOF to maintain health facilities, upgrade of infrastructure and equipment and improving quality is reflected in total health expenditure in Table 3.

[32] An effective pension contribution rate can be imputed by multiplying the ratio of pension to total social insurance expenditures with the overall social contribution rate of 29 percent. For example, in 2009 this would yield an effective rate of 24 percent (83% * 29%).

Table 11. National Health Insurance Company: Contributions and Expenditures
(in percent of GDP)

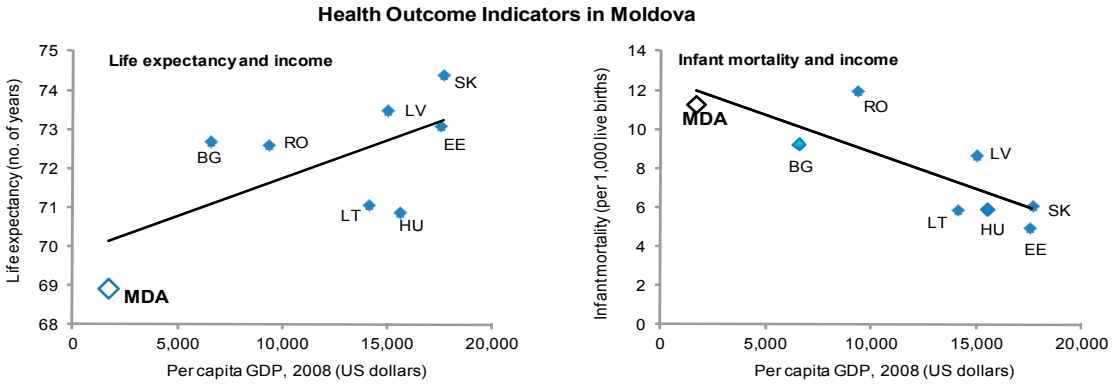
	2004	2005	2006	2007	2008	2009	2010	
							approved	estimated
Total Revenues	**3.0**	**3.4**	**3.5**	**3.8**	**4.3**	**4.8**	**5.2**	**5.3**
1. Mandatory health insurance contributions, total	1.0	1.1	1.2	1.5	1.8	2.3	2.2	2.3
of which:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mandatory health insurance contributions, paid by employer and employee	*1.0*	*1.1*	*1.1*	*1.4*	*1.8*	*2.2*	*2.1*	*2.2*
Mandatory health insurance contributions, paid by natural persons resident in Moldova	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*
2. Other receipts (interest, fines and sanctions)	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0
3. Transfers from the State budget	2.0	2.2	2.2	2.2	2.3	2.4	2.9	2.9
Total Expenditures	**2.9**	**2.9**	**3.3**	**3.5**	**4.1**	**5.2**	**5.2**	**5.3**
1. Fund for settling current health services (basic fund)	2.9	2.9	3.2	3.4	3.9	5.0	5.0	5.0
2. Fund for preventive measures (insurance against risk)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
3. Reserve fund	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
4. Administrative costs	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Deficit						**-0.3**		
Sources to cover deficit fully from the basic fund balance						-0.3		

Source: National Health Insurance Company.

52. **Moldova embarked on a health sector reform at the end of the 1990s**. At that time output health indicators were deteriorating and public health expenditures was only 2.9 percent of GDP. The reforms focused on extending the Primary Health Care (PHC) network, consolidating the health infrastructure, introducing affordable health insurance and breaking the Government's control of hospitals. By 2008, the ratio of health spending relative to GDP reached 5.4 percent with fast rising average per capita health spending (1833 lei, the highest levels since independence).

53. **Despite substantial health sector reforms and notable improvements, reforms are not complete yet with output indicators remaining well below EU averages**. The challenge is how to expand basic coverage to a larger share of the population at a reasonable cost, without generating fiscal pressures.

Looking at some vital indicators, the current level of public health expenditures is above a CEEC average but output indicators fare worse, controlling for income levels. From an average of 4.6 percent of GDP in 2005–07, this ratio rose to 5.4 and 6.5 percent of GDP in 2008 and 2009, surpassing a CEEC average ratio of 4.4 percent of GDP in 2008 (Table 3). As for output, Moldova performs worse than an average in selected CEEC in terms of life expectancy at birth and infant mortality indicators. This is controlling for the low per capita income level in Moldova. Moldova infant mortality rate is 11.27 (EU average is 2.5 times lower), and Moldova Life expectancy at birth is 69 years (EU average is 10 years higher).



Sources: Eurostat IMF World Economic Outlook., World Bank (2009), and IMF Staff Calculations.

54. **Areas of weaknesses in providing financial protection and a provider payment system which does not reward good performance need to be addressed.**

- The private sector plays a large role in financing health costs with high out-of-pocket payments and drug costs not covered by insurance. The share of private spending stands at roughly 47 percent (down from 50 percent in 2005 due to increased public subsidies for health insurance). Out-of-pocket payments are high (98 percent of total private health-related spending), which, coupled with a large share of drug costs that are not covered, contribute to a lack of financial protection.
- With a narrowly input-based funding of services, the current provider payment system does not reward good performance. Performance indicators that can be used to incentivize health facilities managers such as minimizing the cost per unit of service while preserving quality are not in place.

55. **Ongoing reforms should be pursued to contain spending growth while ensuring broad access to high quality health care and addressing large remaining inefficiencies in the sector.**[33] In this regard, targeted measures with attendant short-term fiscal savings should be consistent with the longer-term reform agenda to ensure fiscal sustainability. Key reforms that need to be accelerated are as follows: (i) introducing norms for per capita funding of public health care promoting the right incentives, while in the medium-term incorporate a standard set of quality/performance indicators into all contracts with providers; (ii) promoting efficiency, quality, and user satisfaction in the provider network, including realigning the remuneration system to focus on performance; (iii) containing the out-of-pocket spending on medicines by basing drug reimbursement on therapeutic value to beneficiaries and cost-effectiveness. Finally, regarding the role of State budget transfers to NHIC, a number of actions are envisaged to be developed and implemented at a policy level within the legislative framework review, namely (a) conducting a means-test review of the 14

[33] World Bank (2009a).

categories of population (based on real income and economic vulnerability) for whom the State pays insurance contributions to the Health Fund, and (b) enhancing the cost effectiveness of services rendered by health providers through implementation of a payment mechanism geared toward outcome, performance and complexity of treated cases.

56. **The system of granting subsidies to cover drug costs, or granting exemptions for health insurance contributions should be integrated under the new means-tested social assistance scheme**. This integration would unify the procedures by which social assistance is provided (whether related to health or other social assistance programs) and strengthen the monitoring and targeting of assistance to the poorest income quintile, a large share of which has no health coverage.

F. Conclusions

57. **The composition of short-term and medium-term adjustment measures should facilitate sufficient short-term adjustment flexibility and be consistent with medium-term fiscal sustainability**. A further fiscal deterioration or delays in implementing medium-term structural expenditure reforms will require more extensive short-term expenditure rationalization. More efficient and equitable measures should enable the achievement of sectoral objectives at a lower cost to public finances.

58. **Strengthened fiscal institutions and arrangements can play a key role in support of fiscal consolidation**. This would cover the main elements in the fiscal policy making process such as (i) developing a credible fiscal consolidation strategy by committing to a transparent, comprehensive and binding medium-term fiscal objective that provides sufficient flexibility to accommodate unforeseen shocks—supported by a medium-term budget framework that translates the fiscal objectives into a clear plan for the evolution of public spending; (ii) implementing the consolidation strategy through the budget process—preserve a comprehensive top-down approach to budget formulation in cabinet and allow a role of legislators in the determination of the overall fiscal strategy whilst maintaining sufficient control over budget execution of the multi-year expenditure commitments, and (iii) putting in place a comprehensive, timely, and credible reporting of the current fiscal situation in the government's financial statements and statistics while providing robust medium-term fiscal projections and comprehensive disclosure and management of fiscal risks.

Appendix 1. Basic Data - Moldova Pension System

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GDP (millions of Moldovan lei)	12,322	16,020	19,052	22,556	27,619	32,032	37,652	44,754	53,430	62,922	60,043
GDP real growth (percent)	-3.4	2.1	6.1	7.8	6.6	7.4	7.5	4.8	3	7.8	-6.5
Average wage (Moldovan lei)	305	408	544	692	891	1,103	1,319	1,697	2,065	2,530	2,748
Average wage: Nominal growth (percent)	21.6	33.9	33.3	27.2	28.8	23.8	19.5	28.7	21.7	22.5	8.6
Average wage: Real growth (percent)	-12.7	2.2	21.6	20.9	15.4	10.1	6.8	14.2	8.2	8.8	8.6
Consumer prices (index)	139	131	110	105	112	112	112	113	112	113	100
Pension indexation (percent)					19.3	22.3	18.2	15.7	20.7	17	20
Total population	3,649,930	3,644,070	3,635,112	3,627,812	3,618,312	3,607,435	3,600,436	3,589,936	3,581,113	3,572,703	3,567,512
Population 15-64	2,408,938	2,436,553	2,463,366	2,490,861	2,514,650	2,538,807	2,561,173	2,578,953	2,562,110	2,575,848	2,592,561
Population 65+	339,813	341,704	343,555	349,108	353,479	355,388	355,590	353,107	368,618	368,995	365,530
Number of contributors relative to population 15-64	0.57	0.54	0.59	0.60	0.49	0.50	0.48	0.44	0.65	0.57	0.53
Total number of insured persons (contributors)	1,371,102	1,306,932	1,460,140	1,490,872	1,238,263	1,268,852	1,231,958	1,130,621	1,658,441	1,466,683	1,381,071
Total number of farmers					332,408	351,196	304,265	304,227	806,890	659,793	656,569
Average old age pension (Moldovan lei)	85	86	140	167	218	337	397	458	566	666	801
Average replacement rate of old age pension (average pension to average salary; percent)	28.0	21.1	25.8	24.1	24.5	30.5	30.1	27.0	27.4	26.3	29.1
Average pension (Moldovan lei)	84	85	138	164	211	326	383	440	545	643	773
Average replacement rate (percent)	27.4	20.8	25.4	23.7	23.7	29.5	29.0	25.9	26.4	25.4	28.1
Minimum pension lei (old age, non farmers)						197	291	336	406	475	570
Minimum pension relative to average old age pension						60.5	75.9	76.5	74.5	73.9	73.8
Total number of pensioners	682,217	668,923	649,240	623,284	620,582	617,203	617,040	621,096	620,023	622,203	624,120
Total number of old age pensioners	535,186	516,861	495,841	472,556	468,135	460,822	457,320	459,717	458,795	455,724	457,920
Total number of invalidity pensioners	111,735	113,022	115,526	115,220	117,085	119,925	123,719	125,676	126,538	128,083	130,227
Total number of survivors pensioners	34,493	37,470	36,012	33,515	33,019	31,889	30,505	29,779	28,157	26,589	24,526
share of old age pensioners (percent)	78.4	77.3	76.4	75.8	75.4	74.7	74.1	74.0	74.0	73.2	73.4
share of invalidity pensioners (percent)	16.4	16.9	17.8	18.5	18.9	19.4	20.1	20.2	20.4	20.6	20.9
share of survivors pensioners (percent)	5.1	5.6	5.5	5.4	5.3	5.2	4.9	4.8	4.5	4.3	3.9
Number of new pensioners	18,294	13,507	14,127	16,976	28,472	37,405	40,052	39,949	40,473	23,645	25,815
Number of new old age pensioners	7,282	4,343	3,964	6,670	16,820	22,126	24,636	27,302	27,429	8,246	9,515
Number of new invalidity pensioners	8,134	6,834	7,770	7,497	8,438	9,521	11,054	9,537	9,646	1,774	1,908
Insured persons relative to total number of pensioners	2.0	2.0	2.2	2.4	2.0	2.1	2.0	1.8	2.7	2.4	2.2
Total social insurance revenues (contributions, state budget transfers etc.)	907,853	1,343,295	1,604,288	2,215,955	2,734,439	2,947,860	3,696,000	4,347,650	5,157,229	6,362,838	7,573,599
Contribution revenues	781,233	1,004,966	1,274,780	1,602,083	1,971,751	2,464,150	2,949,200	3,661,511	4,332,654	5,432,582	5,587,161
Total social insurance expenditures	880,055	1,326,418	1,453,562	1,890,778	2,176,221	2,768,883	3,697,774	4,378,060	5,244,559	6,315,100	7,599,149
Pension expenditures (social insurance budget)	530000	813,853	857,864	1,187,261	1,490,486	1,901,009	2,694,615	3,125,881	3,751,594	4,535,952	5,438,842
Pension expenditures relative to total social insurance contributions (percent)	67.8	81.0	67.3	74.1	75.6	77.1	91.4	85.4	86.6	83.5	97.3
Pension expenditures relative to total social insurance expenditures (percent)	58.4	60.6	53.5	53.6	54.5	64.5	72.9	71.9	72.7	71.3	71.8
Deficit/surplus (Moldovan lei)	27,798	16,877	150,725	325,177	558,218	178,977	-1,774	-30,410	-87,330	47,738	-25,550
Total pension expenditures relative to GDP (percent)	4.3	5.2	4.7	5.5	5.7	6.2	7.2	7.3	7.4	7.2	9.1

Sources: IMF staff calculations; and national auhtorities.

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II. MONETARY POLICY TRANSMISSION IN MOLDOVA [1]

A. Introduction

1. **This chapter discusses Moldova's monetary policy transmission in the context of the recently announced new monetary policy strategy.** In January 2010, the National Bank of Moldova (NBM) announced a new monetary policy strategy with a stronger focus on setting and achieving specific inflation objectives. The success of this strategy will largely depend on the NBM's ability to influence the economy. This is not obvious for a developing small open economy where the conventional channels of monetary transmission can fail for a number of reasons, such as insufficient competition, weak institutions, and shallow financial markets.[2]

2. **The chapter first presents a quantitative analysis of the interest rate and exchange rate channels over the past decade** using standard vector auto-regression (VAR) methodology**.** The results are mixed. Monetary policy instruments are found to have a partial influence on market and retail rates. An increase in interest rates is also found to lower private credit and inflation with a lag. But no statistically significant relationship is found directly between interest rates, GDP growth, and inflation, reflecting to some extent the difficulty of identifying such relationships in a rapidly changing open economy and the short data sample. Finally, while the results suggest a small but slowly increasing pass-through from the exchange rate to prices, the estimates are subject to considerable statistical uncertainty.

3. **Second, the chapter studies the impact of the global financial crisis on the Moldovan banking sector drawing implications for the monetary policy in the short run.** A meaningful monetary policy transmission mechanism is largely defined by the commercial banks' response to policy actions. As in most of Eastern Europe, the Moldovan banking sector is undergoing a significant adjustment to the post-Lehman era. Understanding this adjustment and the constraints faced by the banks will be key in properly calibrating monetary policy. To this end, the chapter reviews the impact of the crisis on banks' balance sheets, profits, and behavior. From this standpoint, it discusses implications for monetary policy as well as options to strengthen the monetary policy transmission in the period ahead.

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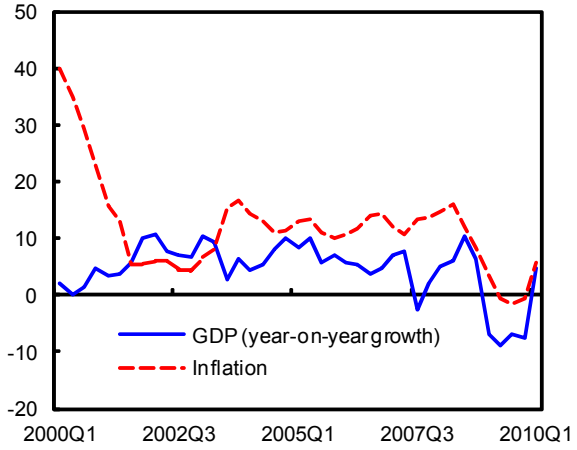
[1] Prepared by Tokhir Mirzoev and Octavian Scerbatchi (Section D), and Gabriel Srour (Sections B and C).

[2] See for instance Cottarelli and Kourelis (1994), Vrolijk (1997), Cecchetti (1999), and McDonald and Schumacher (2007).

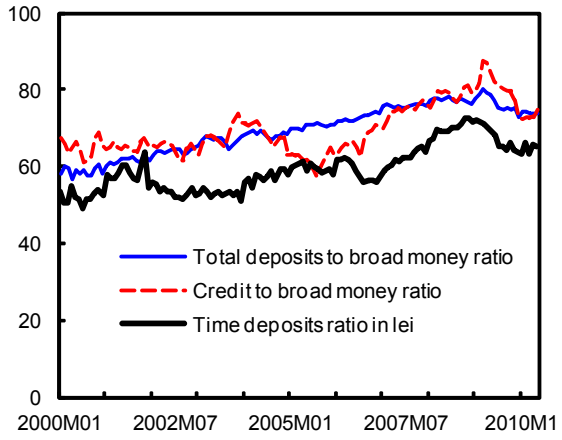
B. Background

4. **Moldova is one of the smallest countries in Europe.** It has limited natural resources and has relied heavily on foreign sources of capital, including remittances and official transfers. Over the period 2000–09, growth averaged 5 percent, with negative shocks in 2006 following a Russian embargo on Moldovan wine, 2007 due to a drought, and most recently in 2009 during the global recession. Inflation fell from around 40 percent to almost zero at end-2009, with a spat in low double-digit levels over 2003–08.

5. **The banking sector has expanded considerably in the last decade.** Bank deposits and credit to the private sector have increased from about 12–14 percent of GDP in 2000 to 40 percent in 2009, and the share of time deposits in total domestic currency deposits and broad money has been trending upward. Fifteen commercial banks were operating in Moldova at the end of 2009, all but one privately owned with high foreign participation.[3] The five largest banks accounted for about two-thirds of total assets. The banking system is relatively sound. Banks regularly meet prudential requirements and, except during the global financial crisis in 2009, were profitable. Interest rates are freely determined and exchange and capital controls have been removed.



Sources: National Bank of Moldova; and IMF staff calculations.



Sources: National Bank of Moldova; and IMF staff calculations.

6. **Nevertheless, the financial markets remain very shallow.** Financial intermediation is constrained by structural impediments, including a burdensome legal process for recovering debt, lack of credit information on borrowers, and administrative barriers to the use of collateral, which are reflected in wide spreads between interest rates for loans and deposits. The secondary bond market, interbank activity, and the equity market are still in their infancy. To meet liquidity management needs, banks have typically relied on central

[3] The licence of one bank (InvestPrivat Bank) was revoked in June 2009.

bank and government facilities. Cash still accounts for about 25 percent of broad money, and bank loans are essentially the only significant source of funding to domestic private firms other than their cash flows.

7. **The main monetary facilities,interest rates, and markets include:**

a. The NBM base rate—the reference rate for the main short-term monetary policy operations, including overnight credit and deposit facilities at the NBM.[4]

b. NBM Certificates, with maturities of up to 1 year, but limited to maturities of 7–28 days over 2000-09.

c. Repo operations based on state securities as well as deposits offered by NBM to banks through auctions or direct negotiations with maturities that have typically varied between 6 and 12 months.

d. Required reserves, currently at 8 percent of bank deposits. The portion of reserves that exceed [5] percent of deposits are remunerated at the overnight deposit rate for domestic currency and an average market rate for foreign currency.

e. T-Bills of various maturities but overwhelmingly below 1 year.[5]

f. Interbank market operations, mainly overnight and up to 14-day loans.

g. Deposit and credit by commercial banks provided in both domestic and foreign currency.[6] Time deposits make about 50–70 percent of total deposits in domestic currency. Credit to the economy has different maturities with the bulk between 6-month and 1-year.

8. **The analysis below focuses on a number of key interest rates.** These include: the base rate as the basic monetary policy instrument, the interbank lending rate as the representative of market rates, and commercial banks' lending and time deposit rates as proxies for retail interest rates. The other interest rates available in Moldova are highly

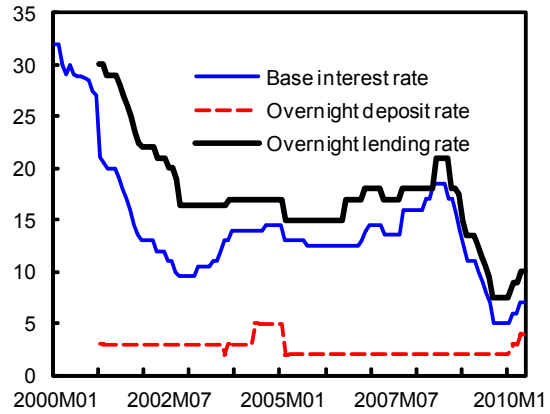
[4] See www.bnm.md/en/financial_politics for more detail on NBM facilities

[5] The large majority of T-Bills are issued in 21, 91, 182, and 364 days. However the government did issue on certain occasions 2-year and 3-year bonds for small amounts.

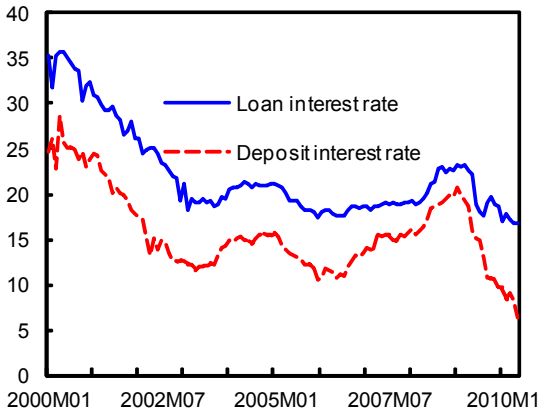
[6] However, households and firms producing for the domestic market are generally not allowed to borrow in foreign currencies.

correlated with one of these instruments. Figure 1 below shows the evolution of these interest rates since 2000.[7]

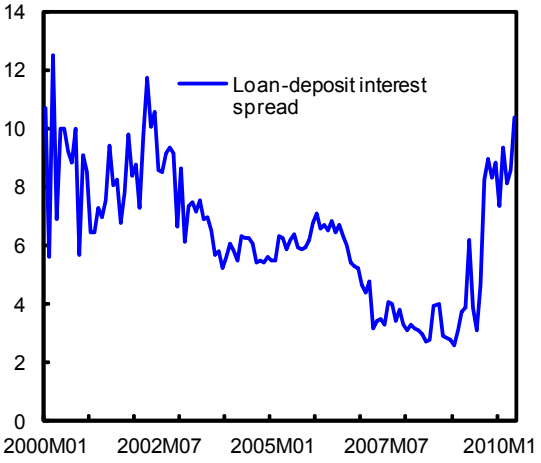
Figure 1. Interest Rates, 2000-10



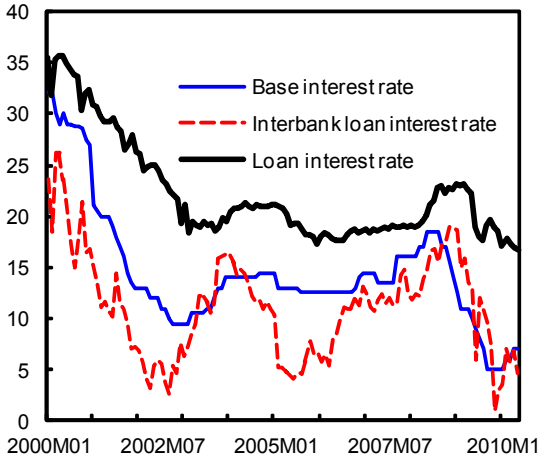
Sources: National Bank of Moldova; and IMF staff calculations.



Sources: National Bank of Moldova; and IMF staff calculations.



Sources: National Bank of Moldova; and IMF staff calculations.



Sources: National Bank of Moldova; and IMF staff calculations.

9. **A few observations are noteworthy:**

- There were times, particularly the periods 2001–02, 2005–2006, and 2008-present, when the rates on the various instruments diverged significantly. In the first two episodes the base rate, bank lending rates, and bank deposit rates remained high, although the spread widened and interbank rates (and rates on NBM certificates and

[7] All interest rates presented are in the form of weighted averages across different maturities, which partly explains the volatility exhibited at high frequency.

T-Bill yields) tumbled. This reflected excess liquidity in the markets, even as the NBM kept the base rate high to absorb liquidity and bring double-digit inflation down. In turn the high base rate, which determines the NBM interest rates on longer-term instruments (e.g. repo rate or deposits at the NBM), may have contributed to keep banks lending rates relatively high. This is consistent with the persistently high time deposit rates during these periods in spite of excess liquidity and the banks' willingness to invest in government instruments at very low yield.

- In contrast, since late 2008 the NBM brought the base rate down significantly. Deposit rates fell in line, but bank lending rates responded very slowly and the spread widened. One possible explanation is that the increase in NPLs during the recession has led banks to ration credit and keep lending rates high in spite of lower costs of borrowing to maintain profitability and recoup previous losses.

C. VAR Analysis [8]

10. **Standard VAR methodology was used to assess the transmission of monetary policy in Moldova.** The preferred lag structure of the VARs is determined by applying the Akaike and Schwartz information criteria, and the VARs are identified via standard Choleski decompositions associated with a given ordering of the variables.[9] Given the short sample of data, we focused on simple VAR models of the transmission mechanism and tested the robustness of the results by means of a large number of alternative representations.

11. **The analysis focused on the interest rate and exchange rate channels.**[10] **Recall the conventional wisdom:**

- Under the **interest rate channel,** an expansionary monetary policy stance leads to lower market and commercial bank interest rates, which in turn spurs domestic demand, eventually pushing up inflation.[11] These effects usually take place with a lag due to the time it takes for the banks to adjust their portfolios, uncertainty about the persistence of the change in stance, and nominal

[8] Little work has been done on this subject in the past. Gigineishvili (2008) examines the determinants of inflation and the transmission of monetary policy to market and commercial rates.

[9] The Choleski decomposition presumes that a shock to a variable does not affect the variablse that precede it in the ordering contemporaneously, but with a lag.

[10] Other channels that could be relevant in Moldova but are outside the scope of this paper include the credit channel, the wealth channel, and the expectations channel. See for instance Bernanke (1993), Bernanke and Gertler (1995), or Mishkin (1995) for overviews.

[11] Prices in Moldova are largely liberalized. Certain prices, e.g., energy-related tariffs, have been administered, however they account for a small share of the CPI.

rigidities. There is empirical evidence that the interest rate channel is relatively weaker in underdeveloped or uncompetitive financial markets.[12]

- Under **the exchange rate channel**, a monetary expansion depreciates the local currency and hence lowers the relative prices of domestic goods, which raises demand and supply of domestic goods and services. Moreover in this case there is an immediate and more direct effect on inflation through the impact of the depreciation on prices of imports. The magnitude and speed of these effects depend on the country's degree of openness, dependence on imported goods, and competitiveness.[13] Also, the pass-through to prices can be asymmetric if prices are downward sticky, whereby inflation is slower to adjust downward following appreciation than upward following depreciation.[14]

12. **VARs were first applied to assess the transmission of monetary policy to market and commercial rates**.[15] A VAR was estimated with the base rate, the interbank rate, and the commercial lending rate as endogenous variables over the period 2000–09 at monthly frequency. Table 1 and Figure 2 show the estimation results and associated impulse response functions in our preferred model specification.[16] Estimations of alternative specifications, including different lag structures, different ordering of the variables for the Choleski identification, restriction to different sub-periods, the addition of deposit rates as an endogenous variable, the inclusion of inflation to better control for common shocks to interest rates, and the inclusion of a dummy variable for 2009 confirmed the qualitative results, although not surprisingly the quantitative results could differ. (Interestingly, in the specification with inflation, all the interest rates are found as expected to respond positively and significantly to an increase in inflation, but less than one-on-one suggesting that monetary policy has been accommodative in the past.) The results indicate:

[12] See references in footnote 2.

[13] See, for instance, Campa and Goldberg (2002)

[14] At least over the last 2 years, there is some anecdotal evidence to this effect in Moldova.

[15] Our results extend Gigineishvili (2008) who uses single equations to examine the transmission of monetary policy to market and commercial rates.

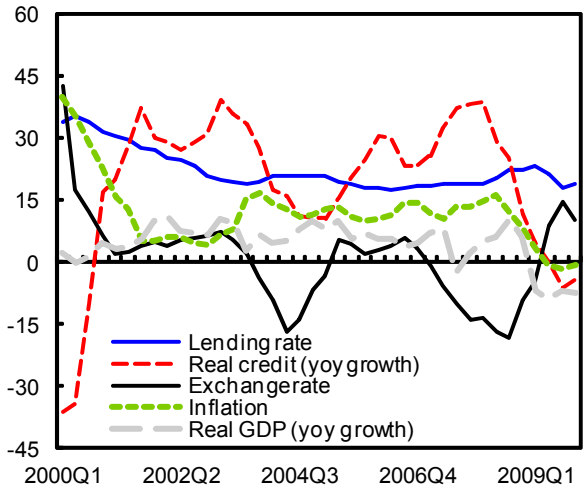
[16] Based on our priors, for the Choleski decomposition the base rate was listed first, followed by the interbank and the lending rate. F-tests strongly rejects the hypothesis that the base rate does not Granger cause the interbank rate; but they also reject the reverse hypothesis with 10% confidence. Similarly, Granger tests between the other variables do not suggest a particular direction of causality. However, the results were robust to changing the order of the variables.

- *A change in the base rate has an immediate and significant effect on the market rate*, but the full effect is passed through with a lag of 3–4 months.

- *A change in the base rate has also a delayed effect on the lending rate*, whereas a change in the interbank rate has a quicker effect on the lending rate, giving credence to the hypothesis that the base rate affects market rates first and they in turn affect lending rates.

- *The estimated pass-through of changes in base rate or the interbank rate to lending rate is relatively small over this sample period*. However, this may be partly driven by developments early in the sample when the base and interbank rates tumbled and in 2009 when lending rates have been very slow to respond to a loosening of monetary policy; the pass through is closer to 1, albeit with a lag, when the estimation is restricted to the period 2003–08 (Table 2, Figure 3).

13. **VARs were then applied to assess the transmission of interest and exchange rate changes to the economy.** To this end, a VAR was estimated with real GDP and/or credit to the economy, prices, exchange rates, and interest rates as endogenous variables over the period 2000-09 at quarterly frequency.[17] Prices are represented by the CPI, the exchange rate is represented by the MDL/USD nominal exchange rate, and interest rates are represented by the average commercial bank lending rate. The behavior of these indicators over the period 2000-03 is somewhat exceptional in view of the steep disinflation that occurred during 2000-02, the substantial decline in interest rates, and a corresponding extreme turnaround in credit (Figure opposite). We have therefore excluded this period from our data sample. The stark changes in 2009 also led us to add a dummy variable for that year.[18]



Sources: National Bank of Moldova; and IMF staff calculations.

[17] The inclusion of credit variables in VAR models of the transmission mechanism is a standard feature of the credit channel literature.

[18] Inclusion of the period 2000–03 in the sample led to inconclusive and counterintuitive results. Inclusion of the dummy variable for 2009 did not alter significantly the results.

14. **Tables 3–4 and Figures 4–5 provide the estimation results and impulse responses in our preferred model specifications with real GDP and credit, respectively.**[19] Estimation of alternative specifications, including different lag structures, restriction to different sub-periods, the use of seasonally adjusted quarterly growth rates, the use of different interest rates, the addition of various dummy variables and exogenous variables (including world commodity, oil and gas prices, remittances or more broadly transfers) to control for particular shocks, and the inclusion of error-correction dynamics, confirmed the outcome in the preferred models. In summary:

- *The relationship between interest rates, GDP, and inflation is inconclusive.* In particular, estimation over different sub-samples produces significantly different results. While this could indicate that the standard relationships between interest rates, demand, and inflation are weak, it may also reflect the diverse supply shocks and structural changes Moldova experienced over this period, and the difficulty to disentangle these diverse effects in econometric estimations over such a short sample period.[20]

- *Therelationship between interest rates, demand, and inflation becomes more evident when we replace GDP with credit to the private sector* (Figure 5). As expected, growth of credit to the private sector declines following an increase in interest rates, with the effect bottoming out after four quarters—a slightly longer lag than is usually found in developed countries.[21] Also an increase in credit leads to higher inflation with the peak achieved again after 4 quarters.

- *Arguably there may be a simultaneity bias in the estimate of the effect of interest rates on credit since changes in credit can also affect the interest rate.* Indeed, Figure 5 shows that a shock to credit leads to a drop in interest rate. However the preferred model specification controls partially for this bias by letting only lagged variables, including the interest rate, enter the credit demand equation as explanatory variables. Moreover results were robust to different ordering of the variables in the Choleski decomposition.

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[19] Following conventional wisdom, in the ordering for the Choleski decomposition, output or credit were listed first, on the basis that interest and exchange rates affect demand with a lag, followed by inflation and the exchange rate. Interest rates are placed last to capture the idea that monetary policy may adjust to current events. All the variables are measured in year-on-year percent change, except interest rates, which are measured in levels.

[20] Adding various dummy variables or exogenous variables to control for particular shocks as described above were not successful in resolving the problem.

[21] Bernanke and Blinder (1992), for instance, find that the effect of the change in T-bill yield on credit in the US obtains within three quarters.

- *A positive shock to the exchange rate (i.e., depreciation) has a small positive and persistent effect on inflation, implying that the pass-through to prices slowly increases over time* (Figure 4).[22] However, these estimates are subject to considerable statistical uncertainty. Indeed, one cannot reject the hypothesis that the effect of a shock to the exchange rate on inflation is not significantly different from 0. Given the short sample of data, different micro-based empirical analyses are required to better assess this channel.

D. A Financial Sector Perspective on Monetary Policy

Impact of the Crisis on Moldova's Banks

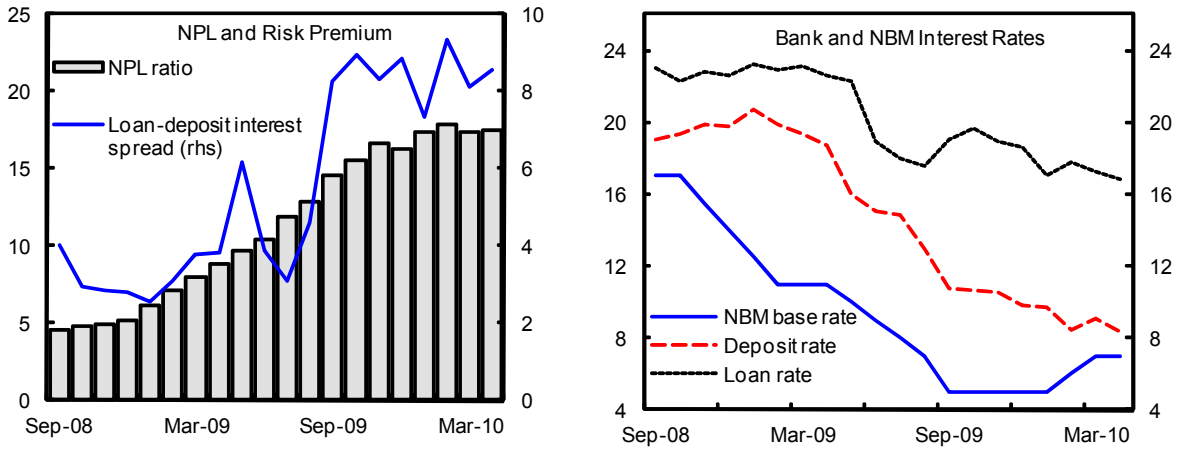
15. **With the economy entering a recession, the banks' balance sheets were hit hard (Figure 6.a.).** Since September 2008, asset quality deteriorated quickly, and over a sixth of bank loans were non-performing at end-April 2010. Owing to declining remittances and increased uncertainty, deposits initially plummeted, and—together with some conversion from lei into foreign exchange (FX)—put a squeeze on banks' liquidity and FX reserves. Facing these pressures, the banks significantly tightened their credit standards and initially increased deposit interest rates to stem the deposit outflow.

16. **Credit went into a tailspin as the transmission from the policy interest rate became impaired.** In repeated attempts to ease the credit crunch, the NBM lowered its base rate by 13 percentage points. The base rate cuts did not succeed, as the rising non-performing loans (NPLs) kept the average loan interest rate high, with a modest decline observed only recently (Figure 7). As a result, by end-April 2010, the banks' net interest margin widened to about 10 percentage points and net credit to non-government at constant exchange rates declined by 16 percent.

17. **The release by the NBM of large amounts of liquidity was mostly used to build liquidity buffers.** During the summer of 2009, the reserve requirements were cut in several steps, releasing about 10 percent of bank assets into the system. But with the still high uncertainty, most of these funds were invested in overnight deposits at the NBM as well as NBM and government bonds. Some of the liquidity was also placed abroad, partly in accounts with foreign banks.

[22] The specification with GDP is the preferred model for assessing the exchange rate channel because it permits a better control of common shocks to prices and the exchange rate.

Figure 7. Asset Quality, Interest Rates, and Risk premium



Source: National Bank of Moldova.

18. **As a result, banks have been struggling to break even, although their capital buffers were broadly preserved (Figure 6.b.).** Recent capital increases in several banks have helped to keep the average capital adequacy ratio at over 30 percent (Table 5). But bank profits have been mostly negative in the second half of 2009, with an exceptionally large loss recorded in December due to a provisioning charge in one bank. Partial recovery of deposits in Q4 2009, which allowed a near-halving of the deposit interest rates, paved way for some recovery of interest income. Combined with unchanged lending rates, this also points to signs of a potentially persistent deleveraging.

19. **And despite emerging signs of bank profitability, a "fresh start" is not yet on the horizon.** Since January, banks returned to profitability, albeit well below the pre-crisis level. Loan delinquencies and NPL ratios remain high, however, lowering visibility on the banks' road ahead. The large capital buffers are comforting, but maintaining profitability will remain a challenge, underscored by a limited scope to further cut interest costs; the non-interest income persistently in the red; and a growing share of unsold collateral—notably real estate—on banks' balance sheets (Figure 6.b.).

20. **Thus, monetary policy may face headwinds in the coming months.** The demonstrated reluctance to lend and a strong preference for safe assets will likely complicate monetary policy transmission by keeping the pass-through from policy actions to credit market conditions low. In addition, the banks' shaky asset quality and profitability situation calls for a careful accounting for the impact of monetary policy actions on banks' balance sheets and, more broadly, financial stability.

Monetary Policy: Short-Run Balance Sheet Considerations

21. **The considerations above suggest high uncertainty over the quantitative impact of monetary policy on inflation in the short run.** Besides the transmission mechanism

being impaired by the crisis, estimating this mechanism is also complicated by numerous structural and policy regime changes over the past two years. Thus, the NBM needs to "enter the water while touching the stones." In this context, monetary policy could be partially guided by the banks' incentives imposed by balance sheets considerations. While admittedly not a perfect predictor, these considerations provide useful benchmarks regarding the effects of monetary policy changes on the banks. We discuss this next, along with the various channels through which the banks and inflation might be affected by monetary policy.

22. **The required reserve ratio presents a brute force tool to affect banks liquidity and profitability.** At present, required reserves represent about 6 percent of bank assets.[23] Reducing the required reserve ratio by one percentage points would release about MDL 0.3 billion, or 0.8 percent of bank assets. If invested in loans, this would contribute to about 1½ percent credit growth and corresponding—compounded by the money multiplier—growth of aggregate demand that would eventually affectinflation. Alternatively, investment of this amount in NBM securities would raise the banks' return on assets by 0.3 percentage points. Similarly, a one percentage point hike in the required reserve ratio would require banks to lower holdings of cash and/or securities with a potentially negative impact on loans over time. Should some banks need to sell their FX reserves, this would create an appreciation pressure on the FX market, contributing to lower inflation.

23. **More generally, a change in the reserve ratio and/or the policy interest rate is expected to affect inflation expectations.** Such changes would communicate to the private sector a change in the central bank's anti-inflation stance. A signal of a tighter stance, for example, would mean an expectation of lower demand and/or a stronger exchange rate, which, in turn, may lead some price setters to refrain from price/wage hikes, thereby lowering inflation. Such expectations in response to changes in the base rate would be based on several channels of transmission, discussed below.

24. **First, the base rate would impact banks' profitability through interest income on NBM and related securities.** At present, NBM securities, overnight deposits at the NBM, and government bonds comprise about 16 percent of bank assets. At the same time, about 4 percent of banks' liabilities are to the NBM, mostly in the form of loans with interest rates tied to the base rate. Thus, a 100 basis point hike (cut) would, ceteris paribus, increase (lower) profits by some MDL 4 million per month, or about 0.7 percentage point increase (decline) in banks' return on equity over one year.

25. **Second, a rate hike (cut) would raise (lower) the opportunity cost of other assets, likely prompting banks to raise (lower) interest rates on loans.** To the extent the loan demand is elastic, lending to the economy, and aggregate demand, would shrink (rise). But even in the current environment of a highly inelastic loan demand, pass-through into loan

[23] NBM released about 60 percent of banks' required reserves during 2009.

interest rates is likely to be incomplete because: i) higher loan rates could also increase delinquencies and banks may be hesitant to raise loan rates fully; and ii) the prevalence of profit considerations over market share objectives, which would limit the pass-through of a cut. Instead, policy rate changes are more likely to induce changes in quantity of loans with lesser impact on interest rates. In addition, the constraints on the expansion of banks' balance sheets imply that the interest rate pass-through is likely to be asymmetric for hikes and cuts in the base rate: stimulating lending will be more difficult than discouraging it in the current environment.

26. **Despite the uncertainty over exact magnitudes, the structure of banks' balance sheet suggests several useful benchmarks.** Suppose the NBM were to change the base rate in a way that targets a particular change in the loan rate. Then, a 100 basis point increase in the interest rate on all loans will—if the loan demand were completely inelastic—raise banks' return on equity by about 3 percentage points. Alternatively, a base rate change that targeted, say a 10 percent decline in banks' holding of NBM-issued claims (NBM bills and/or overnight deposits), would—if invested entirely in new loans—contribute to some 1.8 percent credit growth, while raising the return on equity by about 0.8 percentage points. If kept in cash, however, this would lower banks' return on equity by some 0.3 percentage points.

27. **Third, a hike in the base rate may prompt banks to invest more in NBM and government securities.** For example, with immediate tensions easing and the still large cash buffers, a 100 basis points base rate hike in early February led to some MDL 0.2 billion of new investment in these securities as of end-April. Going forward, there are natural limits to this impact imposed by gradual loan repayment and difficulties of raising additional liabilities. Assuming unchanged liabilities and loans, such a change could be effected by banks' investing the available cash and re-allocating other liquid resources. Transferring cash in lei into NBM bills would only impact banks' profitability. But converting FX cash, as well as banks' deposits abroad into MDL for the purpose of investing into NBM securities would impact the exchange rate, and inflation. Specifically, conversion of the additional FX assets, accumulated since the crisis, would provide the market with some USD 200 million (over 4 percent of GDP).[24]

28. **Finally, higher profitability from a hike in the base rate may create incentives for banks to expand business by raising additional liabilities.** This could lead to higher deposit interest rates, thereby creating incentives for the economy to save more. In addition, higher prospective return on domestic deposits and other investments may stimulate other foreign inflows, including remittances and loans from foreign banks. The last two channels

[24] However, only about a half of this amount could be converted without breaching the net FX open position limit. Conversion of the full amount would require either raising additional capital, or converting some of the FX liabilities into MDL.

would strengthen the lei exchange rate. But considering the still high deposit rates[25] and doubtful lending prospects, it may take a large increase in the base rate to trigger a meaningful expansion of bank balance sheets. In addition, the already short net open FX position (excess of liabilities over assets) implies that additional external inflows would require banks to accumulate FX-denominated assets.

E. Looking Ahead

29. **A number of measures are needed to strengthen monetary policy transmission in the medium term.** The considerations above suggest that the success of monetary policy actions in affecting inflation largely rests on the banks' ability and willingness to respond by rebalancing their portfolios, including lending. This response is currently impaired by rising NPLs and banks' caution. Therefore, besides the general needs outlined in the NBMs monetary policy strategy—including communication strategy, transparency, regular auctions of NBM bills, increased presence of the NBM on the money market and greater emphasis on the base rate as the reference rate for monetary policy—financial sector policies may be needed to break the credit crunch and accelerate the clean-up of banks' balance sheets. This would allow banks to resume lending making monetary policy more potent.

30. **Improving debt resolution instruments would help the banks unwind their balance sheet tensions and regain confidence in lending.** Measures along these lines include introducing speedy bankruptcy procedures for persistently delinquent borrowers, ensuring an efficient framework for the collection and disposition of collateral, and setting up quick out-of-court loan workout tools. At the same time, to help the banks improve lending decisions, the banking community should be encouraged to develop credit bureaus and invest in project appraisal tools.

31. **Meanwhile, to help reduce market nervousness and volatility, the NBM needs to consider improvements to its liquidity framework.** For example, the Moldovan market seems to be dominated by erratic and/or seasonal surpluses and excesses in FX liquidity. Such variations in FX liquidity prompt banks to hold both MDL and FX cash buffers. And NBM interventions to smooth such fluctuations contaminate its communicated monetary policy stance. Alternative FX market arrangements, such as limited short-term FX swap lines with the NBM would help de-link monetary policy from exchange rate smoothing while also allowing banks to focus on their core business of lending with less concern about FX liquidity.

[25] Despite large cuts, the deposit rate at end-February was still above the NBM's base rate and roughly equal to the yield of 364-day T-bills, making new deposits unprofitable without new lending.

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Table 1. Vector Autoregression Estimates

	Base rate	IR_INBNKLOAN	IR_LOAN
BASERATE(-1)	1.089006	0.384818	0.065807
	-0.09616	-0.23194	-0.08951
	[11.3245]	[1.65915]	[0.73516]
BASERATE(-2)	-0.091341	-0.127329	0.021115
	-0.10108	-0.24379	-0.09409
	[-0.90368]	[-0.52230]	[0.22442]
IR_INBNKLOAN(-1)	0.009611	0.699363	0.060051
	-0.04129	-0.09959	-0.03844
	[0.23277]	[7.02223]	[1.56232]
IR_INBNKLOAN(-2)	-0.009235	0.136546	-0.021009
	-0.03944	-0.09513	-0.03671
	[-0.23413]	[1.43536]	[-0.57221]
IR_LOAN(-1)	-0.027257	-0.336132	0.539216
	-0.08886	-0.21433	-0.08272
	[-0.30673]	[-1.56830]	[6.51871]
IR_LOAN(-2)	-0.035241	0.123362	0.335096
	-0.08426	-0.20322	-0.07843
	[-0.41826]	[0.60705]	[4.27258]
C	1.249069	2.649863	0.883705
	-0.42221	-1.01832	-0.39301
	[2.95841]	[2.60219]	[2.24855]
Sample (adjusted): 2000M03 2009M12			
Included observations: 115 after adjustments			
Standard errors in ( ) & t-statistics in [ ]			
Akaike information criterion: 8.957934			
Schwarz criterion: 9.459182			
R-squared	0.977156	0.85608	0.977442
Adj. R-squared	0.975887	0.848084	0.976189
Sum sq. resids	69.09232	401.9236	59.86667
S.E. equation	0.79984	1.929123	0.744527
F-statistic	769.9422	107.0694	779.953
Log likelihood	-133.8823	-235.1294	-125.6412
Akaike AIC	2.450128	4.210946	2.306804
Schwarz SC	2.617211	4.378029	2.473887
Mean dependent	14.87304	11.36591	22.29452
S.D. dependent	5.150785	4.94947	4.824947

Source: IMF staff calculations.

Table 2. Vector Autoregression Estimates

	Base rate	IR_INBNKLOAN	IR_LOAN
BASERATE(-1)	1.041525	0.55032	0.186029
	-0.14167	-0.29635	-0.08537
	[7.35194]	[1.85698]	[2.17904]
BASERATE(-2)	-0.064083	-0.305289	-0.121124
	-0.1496	-0.31294	-0.09015
	[-0.42837]	[-0.97554]	[-1.34355]
IR_INBNKLOAN(-1)	-0.0055	0.920234	0.020484
	-0.06539	-0.13678	-0.0394
	[-0.08411]	[6.72766]	[0.51984]
IR_INBNKLOAN(-2)	0.025439	-0.003088	0.033667
	-0.06703	-0.14021	-0.04039
	[0.37952]	[-0.02202]	[0.83350]
IR_LOAN(-1)	-0.112178	-0.090513	0.831473
	-0.22081	-0.46192	-0.13307
	[-0.50802]	[-0.19595]	[6.24853]
IR_LOAN(-2)	-0.051322	-0.093362	0.053696
	-0.20571	-0.43032	-0.12396
	[-0.24949]	[-0.21696]	[0.43316]
C	3.297779	1.054761	0.76622
	-1.27631	-2.66991	-0.76914
	[2.58383]	[0.39505]	[0.99621]
Sample: 2004M01 2008M12			
Included observations: 60			
Standard errors in ( ) & t-statistics in [ ]			
Akaike information criterion: 6.139764			
Schwarz criterion: 6.872784			
R-squared	0.897411	0.909745	0.948618
Adj. R-squared	0.885797	0.899527	0.942801
Sum sq. resids	18.48102	80.87328	6.711493
S.E. equation	0.590507	1.235278	0.355854
F-statistic	77.27059	89.03751	163.0803
Log likelihood	-49.8083	-94.09248	-19.42062
Akaike AIC	1.89361	3.369749	0.880687
Schwarz SC	2.13795	3.61409	1.125027
Mean dependent	14.29167	11.26167	19.64333
S.D. dependent	1.747375	3.897094	1.487909

Source: IMF staff calculations.

Table 3. Vector Autoregression Estimates

	RGDP_YOY	INFLATION_YOY	EXR$_YOY	IR_LOAN
RGDP_YOY(-1)	0.111856	-0.00121	-0.02207	0.175916
	-0.2374	-0.11624	-0.31764	-0.05043
	[0.47117]	[-0.01041]	[-0.06948]	[3.48817]
RGDP_YOY(-2)	-0.199467	0.035559	0.226468	-0.061113
	-0.18969	-0.09288	-0.2538	-0.0403
	[-1.05156]	[0.38286]	[0.89231]	[-1.51659]
INFLATION_YOY(-1	0.226418	0.725998	-0.769376	0.260493
	-0.44031	-0.21559	-0.58913	-0.09354
	[0.51422]	[3.36749]	[-1.30595]	[2.78489]
INFLATION_YOY(-2	-0.003421	-0.39266	-0.388857	-0.222719
	-0.55704	-0.27274	-0.74531	-0.11834
	[-0.00614]	[-1.43967]	[-0.52174]	[-1.88210]
EXR$_YOY(-1)	0.107869	-0.018624	1.235859	-0.137225
	-0.20828	-0.10198	-0.27867	-0.04425
	[0.51791]	[-0.18263]	[4.43482]	[-3.10146]
EXR$_YOY(-2)	-0.063098	-0.101142	-0.338629	0.079101
	-0.23417	-0.11466	-0.31332	-0.04975
	[-0.26945]	[-0.88212]	[-1.08079]	[1.59009]
IR_LOAN(-1)	0.331485	-0.712393	3.04154	0.762058
	-1.31886	-0.64575	-1.76462	-0.28017
	[0.25134]	[-1.10320]	[1.72363]	[2.71996]
IR_LOAN(-2)	0.992856	-0.100146	-1.175807	-0.228432
	-1.18715	-0.58126	-1.58839	-0.25219
	[0.83634]	[-0.17229]	[-0.74025]	[-0.90578]
C	-21.66869	23.33627	-23.20546	7.659574
	-19.0076	-9.3067	-25.432	-4.0379
	[-1.14000]	[2.50747]	[-0.91245]	[1.89692]
DUMMY	-15.68412	-5.825701	-9.080493	3.817307
	-4.21361	-2.06311	-5.63777	-0.89512
	[-3.72226]	[-2.82374]	[-1.61065]	[4.26456]
Sample: 2004Q1 2009Q4				
Included observations: 24				
Standard errors in ( ) & t-statistics in [ ]				
Akaike information criterion: 16.41339				
Schwarz criterion: 18.37682				
R-squared	0.851715	0.952475	0.900354	0.909895
Adj. R-squared	0.756389	0.921924	0.836296	0.851971
Sum sq. resids	116.1211	27.83876	207.8825	5.240451
S.E. equation	2.879994	1.410136	3.853407	0.611815
F-statistic	8.934745	31.1759	14.05524	15.7083
Log likelihood	-52.97348	-35.83503	-59.96155	-15.79477
Akaike AIC	5.24779	3.819586	5.830129	2.149564
Schwarz SC	5.738646	4.310442	6.320985	2.64042
Mean dependent	3.816667	10.39354	-3.275291	19.77014
S.D. dependent	5.835027	5.046624	9.523897	1.590181

Source: IMF staff calculations.

Table 4. Vector Autoregression Estimates

	RCREDIT_YOY	INFLATION_YOY	EXR$_YOY	IR_LOAN
RCREDIT_YOY(-1)	1.255815	0.010294	0.211748	-0.11498
	-0.25121	-0.08169	-0.22182	-0.0354
	[4.99899]	[0.12602]	[0.95459]	[-3.24760]
RCREDIT_YOY(-2)	-1.131351	0.018906	-0.120914	0.049984
	-0.39191	-0.12744	-0.34606	-0.05523
	[-2.88674]	[0.14836]	[-0.34940]	[0.90495]
INFLATION_YOY(-1)	0.802438	0.718323	-0.5699	0.13102
	-0.75399	-0.24517	-0.66577	-0.10626
	[1.06426]	[2.92988]	[-0.85600]	[1.23299]
INFLATION_YOY(-2)	0.612358	-0.400446	-0.455088	0.03915
	-0.7741	-0.25171	-0.68353	-0.1091
	[0.79106]	[-1.59090]	[-0.66579]	[0.35886]
EXR$_YOY(-1)	-0.224077	0.003891	1.340249	-0.103592
	-0.29098	-0.09462	-0.25693	-0.04101
	[-0.77009]	[0.04112]	[5.21636]	[-2.52613]
EXR$_YOY(-2)	-0.264292	-0.09064	-0.309138	-0.035715
	-0.36213	-0.11775	-0.31976	-0.05104
	[-0.72983]	[-0.76975]	[-0.96678]	[-0.69979]
IR_LOAN(-1)	-2.559154	-0.563233	4.189217	0.121488
	-2.00422	-0.65171	-1.76972	-0.28246
	[-1.27689]	[-0.86425]	[2.36716]	[0.43010]
IR_LOAN(-2)	-3.915873	0.042154	-1.136082	-0.346295
	-2.76853	-0.90023	-2.44461	-0.39018
	[-1.41443]	[0.04683]	[-0.46473]	[-0.88753]
C	126.0069	17.51507	-48.38949	22.66103
	-59.4019	-19.3156	-52.452	-8.37174
	[2.12126]	[0.90678]	[-0.92255]	[2.70685]
DUMMY	16.63772	-6.500766	-8.552058	2.197466
	-10.2254	-3.32497	-9.02905	-1.44111
	[1.62709]	[-1.95513]	[-0.94717]	[1.52485]
Sample: 2004Q1 2009Q4				
Included observations: 24				
Standard errors in ( ) & t-statistics in [ ]				
Akaike information criterion		17.57866		
Schwarz criterion		19.54209		
R-squared	0.929925	0.952227	0.901084	0.909612
Adj. R-squared	0.884876	0.921515	0.837495	0.851506
Sum sq. resids	264.6675	27.9843	206.3588	5.256915
S.E. equation	4.347968	1.413817	3.839259	0.612776
F-statistic	20.64273	31.00567	14.1705	15.65423
Log likelihood	-62.85957	-35.8976	-59.87327	-15.83241
Akaike AIC	6.071631	3.8248	5.822773	2.152701
Schwarz SC	6.562487	4.315656	6.313629	2.643557
Mean dependent	19.46265	10.39354	-3.275291	19.77014
S.D. dependent	12.81455	5.046624	9.523897	1.590181

Source: IMF staff calculations.

Table 5. Moldova: Balance Sheet of Commercial Banks Since September 2008. 1/
(In billions of MDL, unless indicated otherwise)

	Sep-08	Dec-08	Mar-09	Jun-09	Sep-09	Dec-09	Mar-10	Apr-10
Assets	**39.4**	**39.1**	**37.6**	**36.6**	**37.8**	**39.9**	**39.3**	**39.5**
Cash	1.8	1.9	1.7	1.8	2.1	2.2	2.1	2.2
MDL	0.9	1.2	1.0	0.9	1.1	1.0	1.1	1.2
FX	0.8	0.7	0.7	0.9	1.0	1.1	0.9	1.0
Claims on NBM	8.1	7.1	5.2	5.4	4.3	6.1	6.2	6.0
required reserves	6.9	5.8	5.1	5.1	2.3	2.4	2.4	2.5
MDL	3.5	2.9	2.2	2.1	1.0	1.0	1.1	1.1
FX	3.4	3.0	2.9	3.0	1.3	1.4	1.3	1.3
other claims	1.1	1.3	0.1	0.4	2.0	3.7	3.8	3.5
of which: NBM bills	1.0	1.1	0.1	0.0	0.0	3.1	3.3	3.3
Claims on Government	1.2	1.3	1.5	2.0	2.6	2.9	2.9	2.8
Claims on banks	1.9	2.6	3.2	2.9	4.3	4.4	3.9	4.2
Loans to non-government, net	23.8	23.5	22.8	20.9	20.3	20.2	19.9	19.9
gross loans to non-government	25.0	24.7	24.2	22.3	22.0	22.4	22.2	22.3
households	5.5	5.3	5.8	5.1	4.8	4.6	4.5	4.7
MDL	5.1	4.9	5.1	4.3	4.0	3.8	3.7	3.8
FX	0.4	0.3	0.7	0.8	0.8	0.9	0.8	0.8
corporates	19.5	19.5	18.4	17.2	17.2	17.8	17.6	17.6
MDL	9.7	9.7	9.3	8.4	8.5	8.7	8.9	8.9
FX	9.7	9.8	9.1	8.8	8.7	9.1	8.8	8.7
provisions	-1.1	-1.2	-1.4	-1.5	-1.7	-2.2	-2.3	-2.3
Other assets	2.6	2.8	3.0	3.5	4.2	4.1	4.4	4.3
other real estate (collateral)	0.0	0.2	0.2	0.5	0.7	0.7	0.6	0.6
Liabilities and capital	**39.4**	**39.1**	**37.6**	**36.6**	**37.8**	**39.9**	**39.3**	**39.5**
Liabilities	32.6	32.1	30.5	29.7	31.0	33.0	32.2	32.4
Deposits	27.9	27.2	25.3	24.2	24.9	26.4	26.3	26.3
Government	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Households	17.6	16.8	15.7	14.9	15.2	16.1	16.3	16.4
MDL	9.5	9.1	7.4	6.7	6.9	7.4	7.8	7.9
FX	8.2	7.7	8.2	8.2	8.3	8.7	8.5	8.5
Enterprises	7.5	7.2	6.8	6.7	7.1	7.8	7.9	7.9
MDL	5.1	5.0	4.1	3.9	4.2	4.6	4.8	4.7
FX	2.4	2.2	2.7	2.8	2.9	3.2	3.1	3.2
Banks	0.5	0.8	0.5	0.4	0.3	0.3	0.2	0.1
Non-residents	2.3	2.3	2.3	2.2	2.2	2.2	1.8	1.8
Borrowing	3.7	4.1	4.3	4.5	5.4	6.0	5.3	5.3
Other liabilities	1.0	0.7	0.8	1.1	0.7	0.5	0.6	0.8
Capital	6.8	7.0	7.1	6.8	6.8	6.9	7.1	7.1
of which: retained earnings	4.0	4.1	4.3	4.1	4.1	3.9	4.0	4.0
Memorandum items:								
Capital adequacy ratio, percent	30.8	32.2	32.9	32.8	31.7	32.3	32.6	32.7
Regulatory capital, MDL billions	6.4	6.6	6.7	6.5	6.5	6.6	6.7	6.8
NPL ratio, percent 2/	4.6	5.2	8.0	10.5	14.6	16.3	17.4	17.5
Past due-to-gross loans, percent	4.6	5.5	11.4	12.3	16.5	17.7	20.3	19.2
Risk weighted assets, MDL billions	20.8	20.6	20.5	19.7	20.4	20.4	20.7	20.7
Net open FX position, MDL billion 3	0.1	0.1	0.0	0.0	0.0	-0.3	-0.5	-0.5
in percent of regulatory capital	1.7	1.6	-0.6	-0.1	0.5	-5.1	-6.9	-6.9

1/ At current exchange rates.

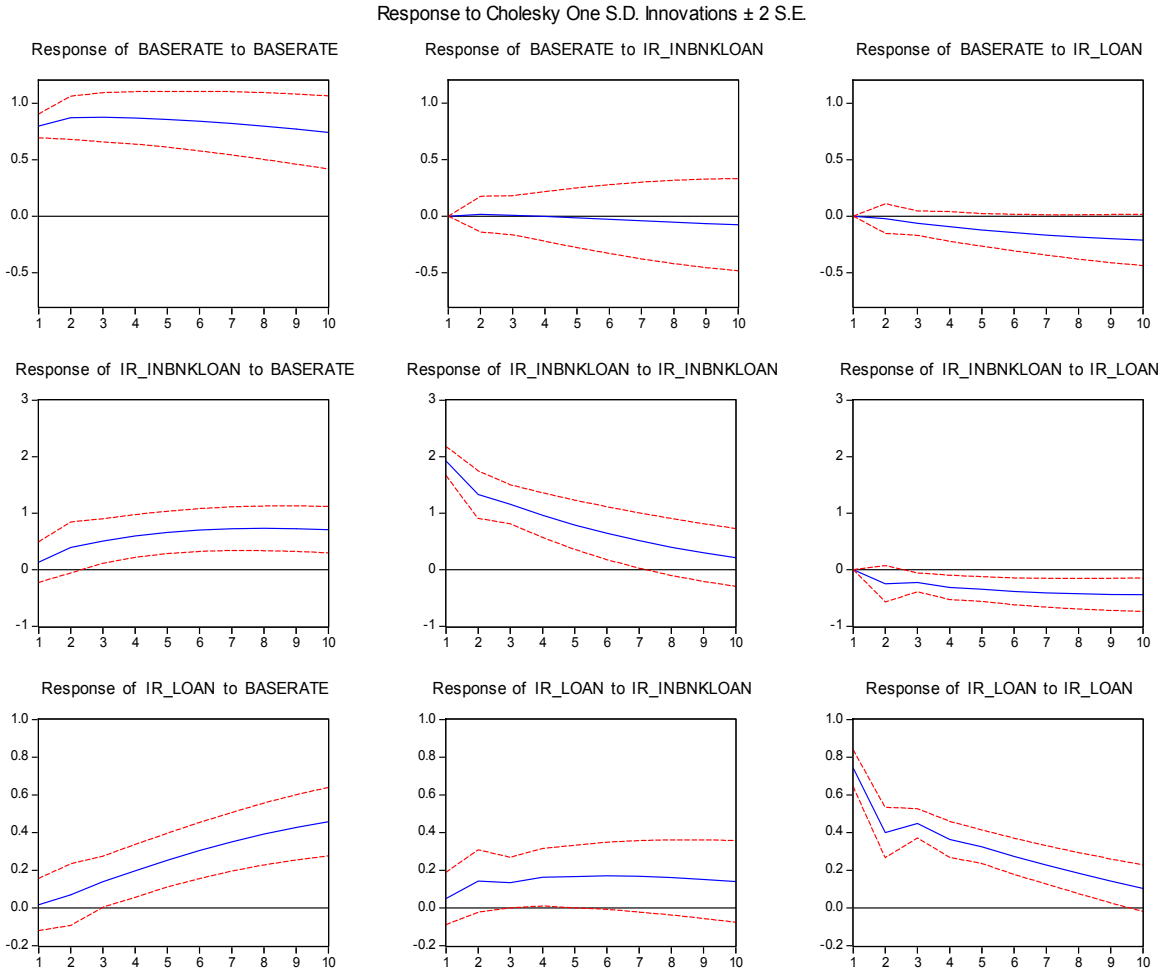
2/ Based on loans overdue by over 60 days.

3/ FX assets minus FX liabilities; (-) indicates a short position.

Sources: National Bank of Moldova; and IMF staff estimates and calculations.

Figure 2. Impulse Responses

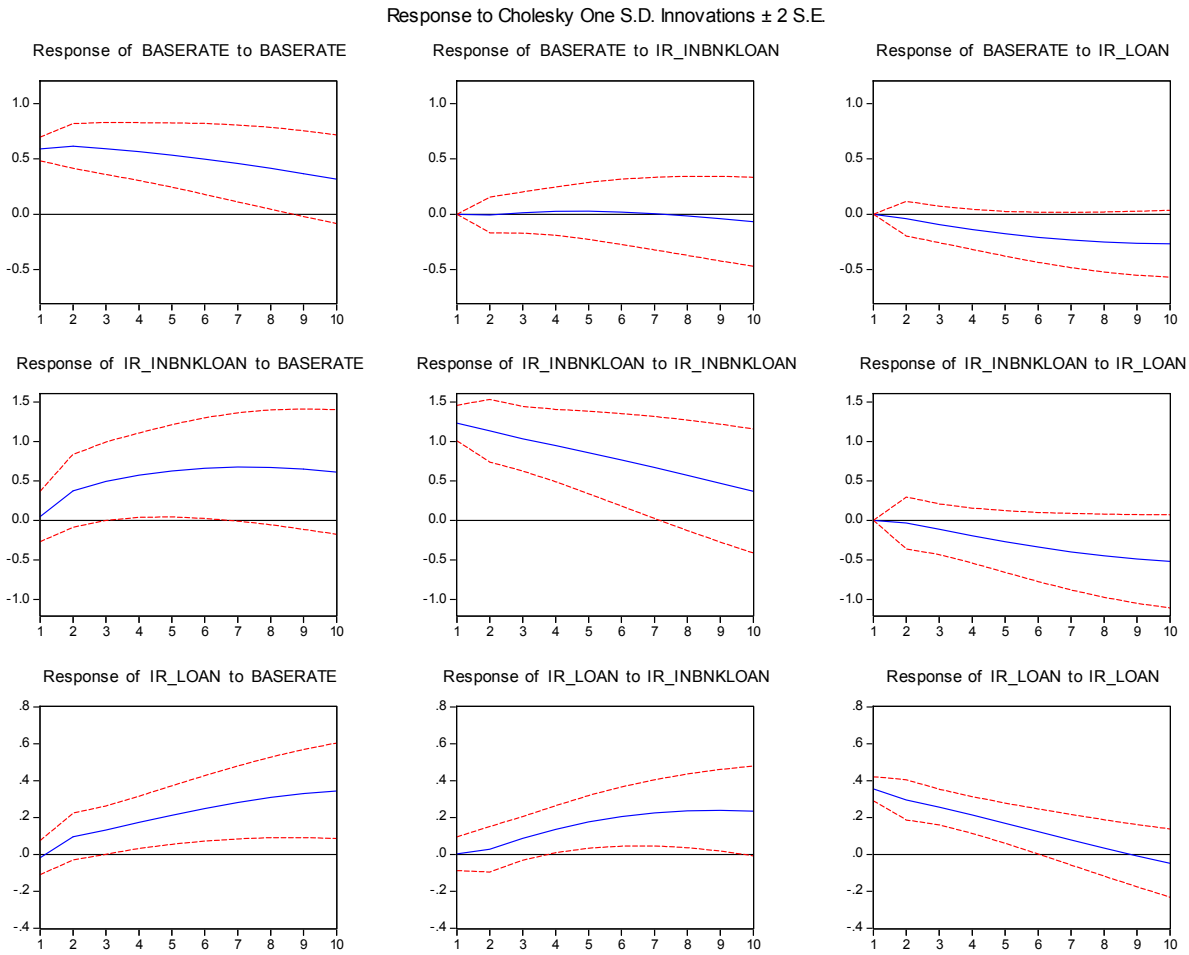
(Sample 2000M1-2009M12)



* In the chart above, baserate Ir_inbnkloan, and ir_loan represent the base, the intra-bank lending, and the lending rates respectively.

Figure 3. Impulse Responses

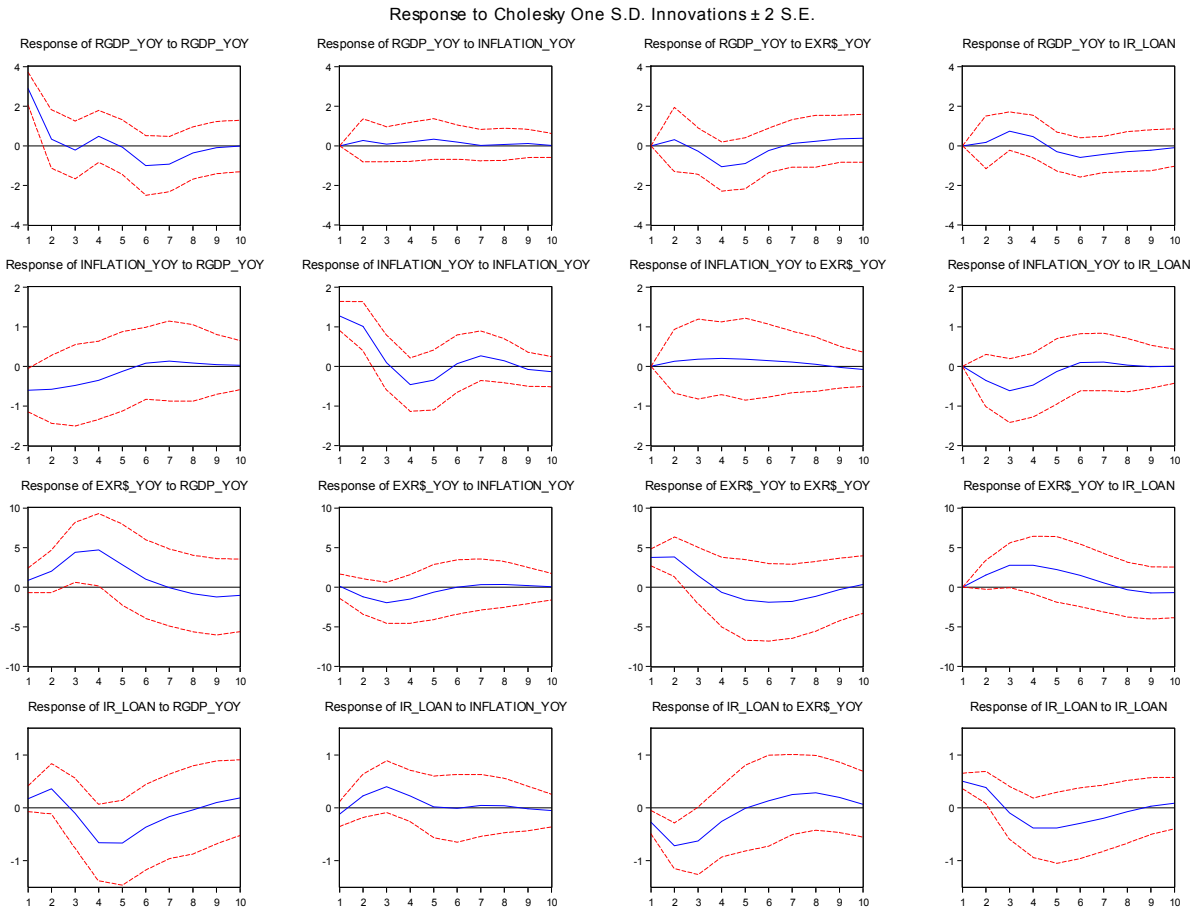
(Sample 2003M1-2008M12)



* In the chart above, baserate Ir_inbnkloan, and ir_loan represent the base, the intra-bank lending, and the lending rates respectively.

Figure 4. Impulse Responses

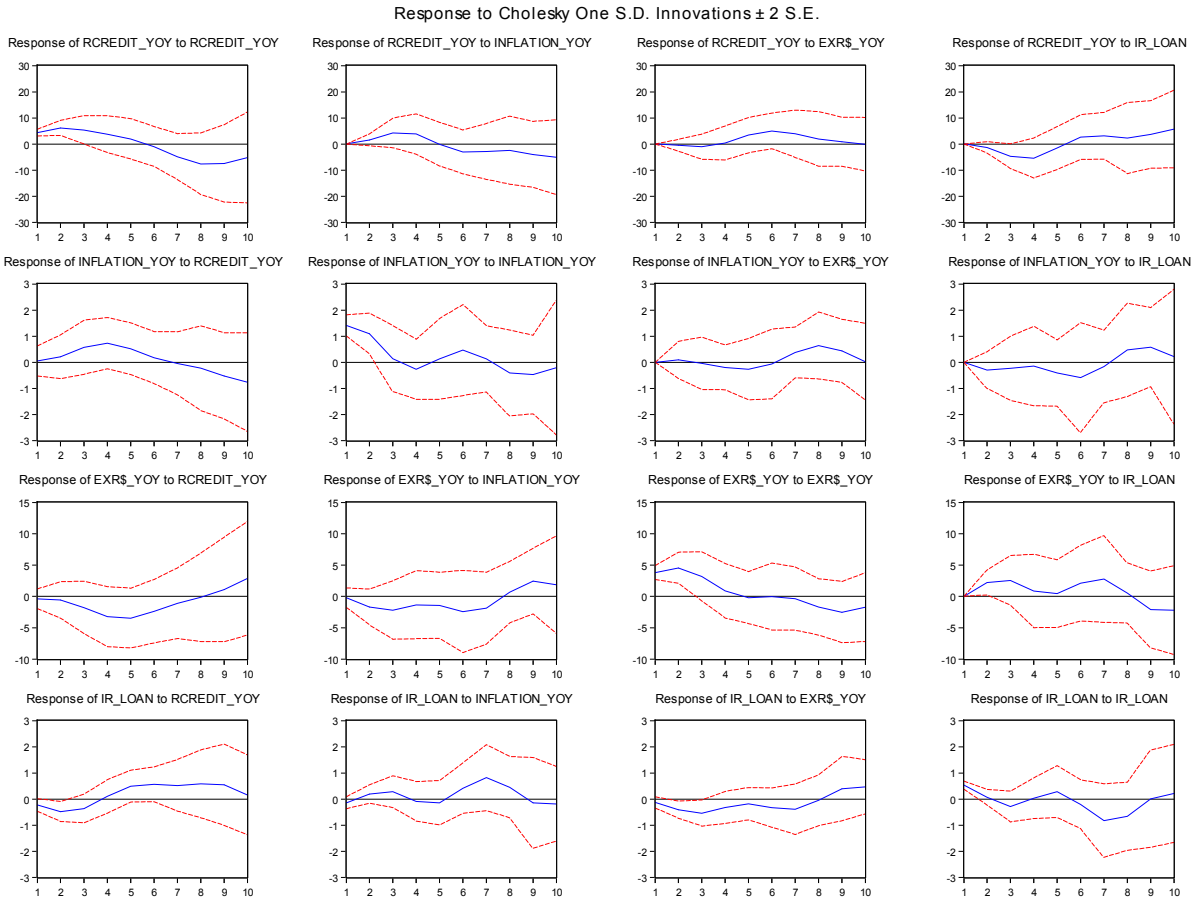
(Sample 2004Q1-2009Q4)



* In the chart above, rgdp_yoy, inflation_yoy, exr$_yoy, and ir_loan represent the real gdp year-on-year growth rate, the year-on-year inflation, the lei per USD exchange rate, and the lending rate respectively.

Figure 5. Impulse Responses

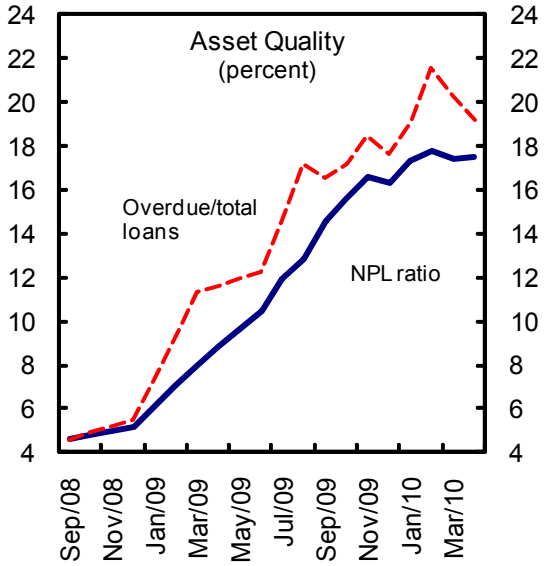
(Sample 2004Q1-2009Q4)



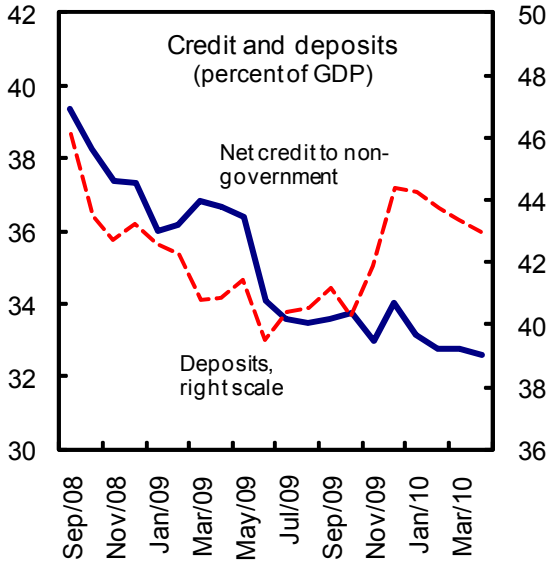
* In the chart above, rcredit_yoy, inflation_yoy, exr$_yoy, and ir_loan represent the year-on-year percent change in real credit to the economy, the year-on-year inflation, the lei per USD exchange rate, and the lending rate respectively.

Figure 6.a. Moldova: Banking Sector Developments During the Crisis

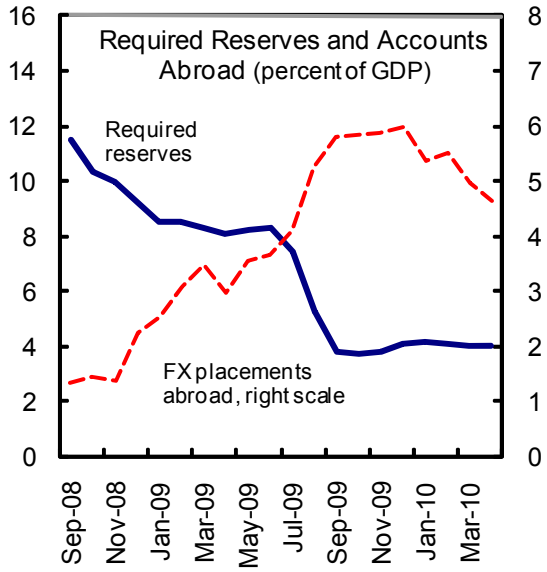
Sharp deterioration of banks' asset quality since the crisis...



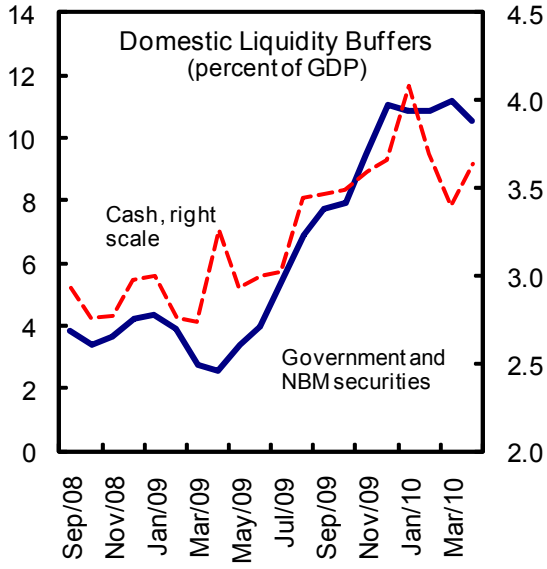
… has led to a deep credit crunch, despite recent signs of deposit recovery.



In response, NBM released required reserves, some of which fled the country...



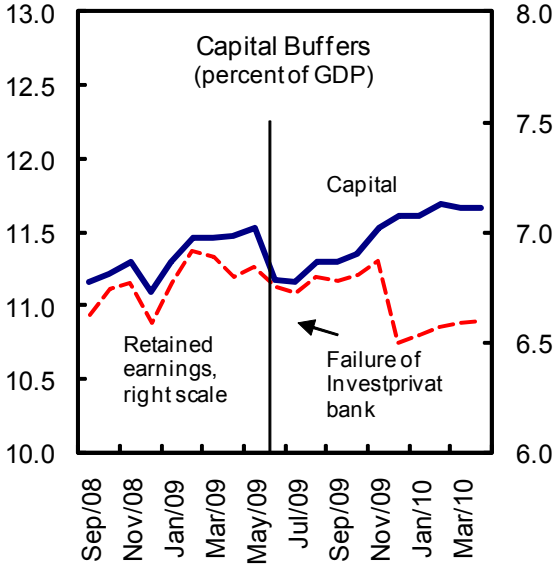
…while also helping banks augment their domestic liquidity buffers.



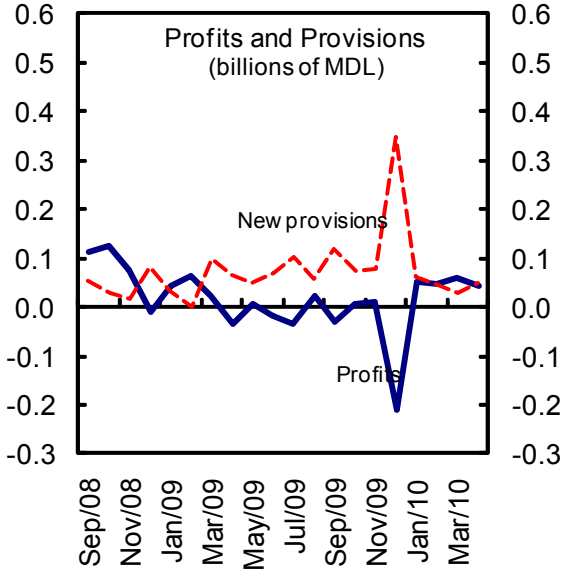
Source: National Bank of Moldova; and IMF staff estimates.

Figure 6.b. Moldova: Banking Sector Profitability During the Crisis

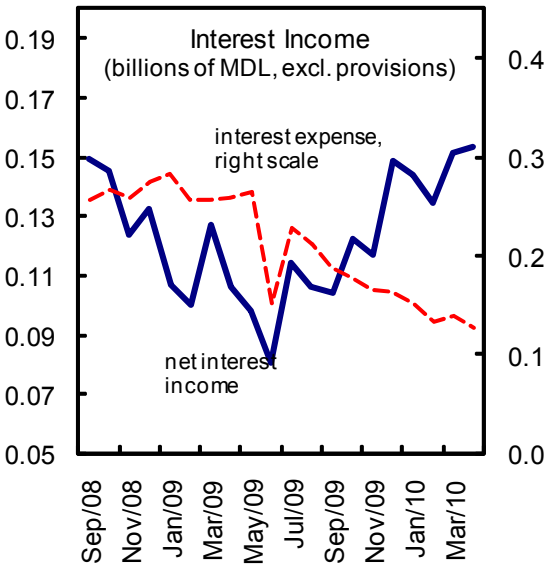
Capital buffers have held up, helped by recent recapitalizations.



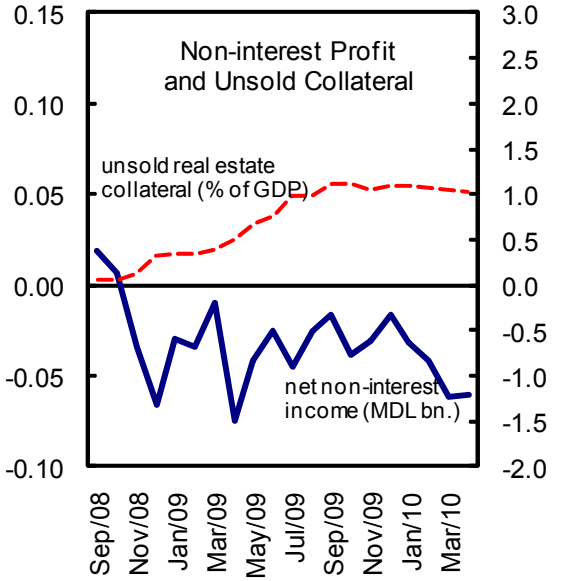
But with growing provisioning, banks are barely breaking even.



Meanwhile, the recovery of net interest income owed to lower deposit rates...



...and non-interest income remains in the red, while banks are accumulating real estate.



Source: National Bank of Moldova; and IMF staff estimates.

III. Factors and Features of Economic Growth [1]

A. Introduction

1. **This paper considers Moldova's growth performance over the last decade and the medium-term growth outlook.** It highlights the key factors that either boosted or hindered the country's growth prospects. The paper estimates Moldova's potential growth and the contributions of production factors to it. The analysis leads to policy recommendations focused on the need to promote export-led growth and remove obstacles for development.

2. **The growth model based on expansion of domestic demand fuelled by remittances made the economy prone to "boom-bust" cycles.** The pre-crisis economic growth largely reflected steady increase in workers' remittances, private consumption, and investments in sectors producing nontradable goods and services. Imports and output of these sectors expanded at a brisk pace, while the share of exports in GDP declined. When remittances, capital inflows, and exports decreased abruptly in 2009 in the wake of the global economic crisis, the economy plunged into a deep economic recession accompanied by a sharp correction of trade imbalances.

3. **The estimates of the economy's potential growth rate rely on the production function approach**. The medium-term potential growth rate is estimated at about 4 percent, while the actual growth can go above or below this level because of cyclical swings in the economy. According to the analysis, the largest contribution to growth in Moldova comes from rising total factor productivity. Expanding capital stock makes a significant contribution as well, while a declining labor force naturally subtracts from growth.

4. **To sustain high growth going forward, it is essential to diversify the growth model by promoting exports and maintaining external price competitiveness.** A four percent growth rate looks modest when compared to Moldova's vast development needs and poverty reduction objectives. Sustainably higher growth rates could be achieved only through export-led growth based on a strong expansion of the tradable sectors of economy. Maintaining external price competitiveness implies keeping real wage growth in line with productivity gains and avoiding policies that lead to overvaluation of the national currency.

5. **Improving the business climate and upgrading the country's infrastructure are essential for facilitating the growth model diversification.** International competitiveness rankings highlight dilapidated infrastructure and bad roads in particular as important factors hindering Moldova's competitiveness. They also suggest the need to streamline the procedures for issuance of construction permits and land allocation, revamp labor market

[1] Prepared by Michael Gorbanyov.

laws, protect investor rights and improve companies' access to finance. Reforms in these arears can remove important obstacles to economic development. A national development strategy paper can document government reform priorities and set quantitative indicators to measure progress towards them.

6. **The rest of the paper is organized as follows.** Section B outlines the factors that shaped the growth model relying on domestic demand and remittances. Section C presents results of potential growth estimates using the production function method. Section D contemplates policies for improving business environment and promoting sustainable growth. Section E concludes with summary of findings and policy recommendations.

B. Features of the Economic Growth Model in Moldova

Main factors shaping growth performance over the last decade

7. **Growth in Moldova accelerated in the last decade, to be interrupted only by the global economic crisis** (Figure 1). The annual GDP growth averaged almost 6 percent in 2000–08, which was a considerable improvement compared with the average contraction of about 3 percent in 1995–99, not to mention double-digit decline rates in 1991–94. In the wake of the global economic slowdown, GDP contracted by 6.5 percent in 2009. The economic growth of the last decade raised the living standards in the country and contributed to high fiscal revenues and poverty reduction.

8. **Growth was mainly driven by expanding domestic demand fuelled by workers' remittances.** The private consumption's share in GDP increased steadily from 56 percent in 1995 to 93-94 percent in 2006–08. This increase in large part resulted from growing remittances, which increased from about 5 percent of GDP in the mid-1990s to 30-33 percent in 2006–08.[2] Remittances became very important for the families of those working abroad, allowing them to reach a level of consumption and well-being unattainable for them otherwise. Indirectly, through taxation of consumption and imports, remittances also helped increase the fiscal revenues.

9. **Rising labor productivity became one of the main factors underpinning GDP growth.** In all years, labor productivity increased more or in line with the GDP growth rate. This in part reflected rising productivity in the growing sectors of economy and in part resulted from labor shedding by depressed sectors. Large labor outflows came from agriculture, which exhibited poor productivity. Even after shedding a lot of excess labor, agriculture accounted for about 28 percent of Moldova's employment in 2009 while producing only about 8 percent of its GDP.

[2] The increase in reported remittances could have resulted in part from improved statistics coverage.

10. **The GDP expansion of the last decade was accompanied by steady decline in the local labor force.** Facing low salaries and high unemployment at home, many Moldovan workers opted for job opportunities outside the country, and up to 40 percent of the labor force works abroad (Cuc et al. (2005)). The Moldovan local labor force decreased from 53 percent of population in 1995 to only 36 percent in 2008, while the unemployment rate declined from 14 percent to 4 percent over this period. Unemployment increased to about 6 percent in 2009 because of the economic crisis and return to Moldova of some migrants who lost jobs abroad.

11. **Rising domestic investments and FDI also contributed to economic growth** (Figure 2)**.** Over the last decade, the share of investments in GDP more than doubled from about 15 percent in 2000 to 34 percent in 2007–08. A large contribution came from increasing foreign direct investments (FDI). They reached 11–12 percent of GDP in 2007–08, but collapsed in 2009 in the wake of the global crisis.

12. **Sectors producing goods and services for domestic consumption expanded fast, while key sectors producing tradables stagnated.** Value added in financial and other services, wholesale and retail trade and construction expanded at a brisk pace. On the contrary, agriculture and industry stagnated, and their share in GDP steadily declined from 54 percent in 1995 to only 20 percent in 2009.[3] The notable exception was the transport and communications sector, where fast expansion reflected both domestic and international demand, including for transit through the country.

The costs and risks of Moldova growth model

13. **The growth model relying on domestic demand fuelled by remittances as its main engine is particularly vulnerable to "boom-bust" cycles**. In general, the economies that receive higher levels of remittances experience higher rates of output volatility (Chami et al. (2006, 2008)). In Moldova this became painfully clear in 2009, when the remittances dropped in the wake of the global economic crisis. This led to a sharp decline of the domestic demand and economic activities largely financed by remittances, such as residential construction. Ultimately, this contributed to a sharp GDP contraction.

14. **Even after the projected rebound after the crisis, the growth model based on remittances will be subject to known constraints.** Going forward, the role of remittances cannot increase much beyond its maximum of 2006–07. The share of Moldova's labor force working abroad is already very high and cannot increase much further. In addition, the usual patterns of remittances flows suggest that they peak at a certain time in a worker's career and

[3] Agriculture and industry are the key sectors of Moldovan economy that produce tradables – the goods and services that can be exported or compete with imports in the domestic market. On the contrary, nontradables are the goods and services that normally cannot be exported and are produced for domestic consumption only.

can even decline thereafter, as workers get entrenched in their destination countries and gradually lose ties with their country of origin (Chami et al. (2008)).

15. **Naturally, those working abroad do not pay taxes and social contributions in Moldova, which adds to domestic imbalances.** With direct taxation of workers' remittances or salaries abroad being all but impossible, the central and local budgets have to rely on heavy taxation of consumption and imports.[4] This can lead to higher level of domestic prices compared to neighboring countries. For the national pension fund, having large share of the labor force abroad implies higher dependency ratio and higher burden on those working in the country.

16. **The current growth model also created sizable external imbalances requiring large precautionary holdings of international reserves.** Expansion of private consumption fuelled by remittances naturally led to rising share of imports in GDP, while the share of exports steadily declined reflecting deteriorating international competitiveness.[5] As a result, the trade deficit ballooned from about 26 percent of GDP in 2000 to 53 percent of GDP in 2007–08 and was largely covered by remittances. When the remittances and capital inflows collapsed in 2009, this prompted sharp correction of trade imbalances and necessitated massive interventions by the National Bank of Moldova (NBM) in support of the national currency. To have capacity for such interventions, NBM has to maintain large international reserves, amounting to nearly 28 percent of GDP at end-2008. This was one of the highest ratios among the transition economies of the Southeastern Europe and CIS (Figure 3).

The challenge of diversifying the economic growth model

17. **To sustain high growth over the next decade, it becomes essential to diversify Moldova's growth model.** The challenge is to switch the focus from growth in sectors producing nontradable goods and services for local consumption fuelled by remittances to export-led growth in tradables based on new investments and expansion on external markets. This is required to sustain the increases in labor productivity, stabilize or even raise local employment, and eliminate the need for labor migration abroad. Diversifying the growth model will help improve Moldova's external competitiveness, boost exports, and alleviate the external and domestic imbalances.

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[4] Moreover, if the set of policy instruments is not sufficiently varied, the presence of remittances may lead to higher inflation, as the government increasingly relies on the inflation tax (also known as seigniorage) to tax remittances (Chami et al. (2006)).

[5] The Russian ban on wine imports from Moldova introduced in 2006–07 also played a role. It was triggered by disputes about quality of Moldovan wine products.

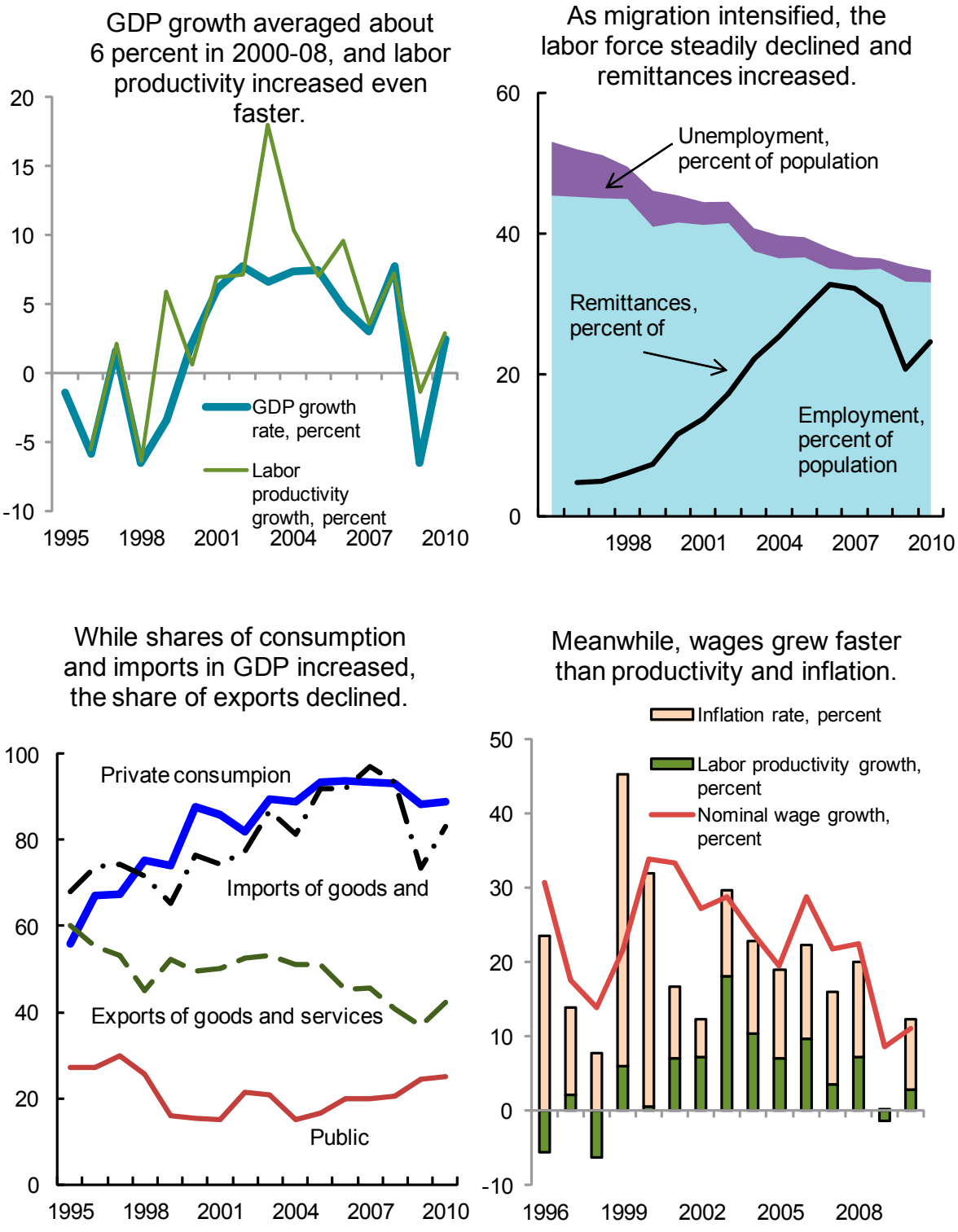
18. **Prudent wage policy linked to productivity increases should be an integral part of the diversified growth model.** Often led by large salary increases in the public sector, double-digit annual wage increases became a norm for Moldova in the last decade. Exceeding both productivity gains and consumer price hikes, such increases added to inflation pressures, but were not effective in reversing labor migration. Going forward, the challenge is to closely link wage growth to productivity gains in the public sector and in the economy in general.

19. **Maintaining policies that prevent the exchange rate from excessive appreciation also play an important role in supporting external competitiveness.** Rapid real effective exchange rate appreciation in the second half of 2008 eroded external competitiveness in the eve of the crisis. This excessive strengthening of the national currency was reversed only in 2009, when the nominal exchange rate depreciated and price deflation occurred.

20. **The ability to mobilize domestic investment and attract FDI is a necessary, but not sufficient condition for the successful diversification of the growth model.** Investments from foreign and domestic sources amounted to as high as 34 percent of GDP in 2007-08. However, they mainly went to the sectors producing nontradables and, in fact, entrenched the existing growth model. To promote the new growth model, the investment attractiveness of sectors producing tradables should improve considerably.

21. **Advancing structural reforms and liberalizing trade holds the key to attracting new FDI for Moldova.** A study by Demekas et al. (2005) estimated the gap between "potential" and actually received FDI in Moldova at as much as 77 percent in 2003, which was the second-largest among the 14 countries covered in the paper. The study estimated the potential FDI using both "gravity" model variables (such as country size, population, proximity to markets, etc.) and the "best" values of policy variables affecting FDI (infrastructure reform index, trade liberalization, taxation level, etc.). These results suggested that Moldova could benefit more than most countries in Southeastern Europe from a sustainable improvement in policies.

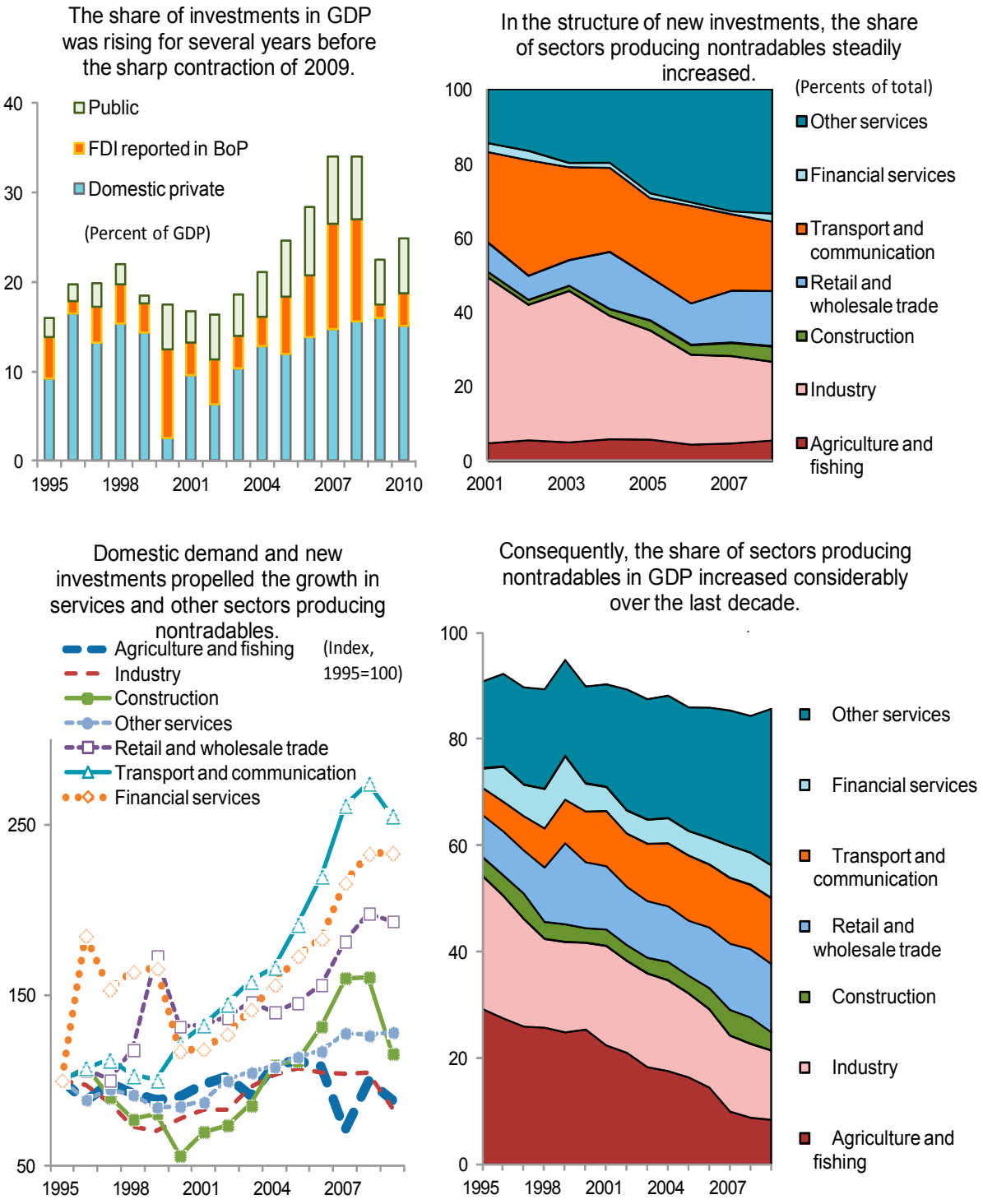
Figure 1. Moldova: Economic Developments, 1995–2010[1]



Source: National Bureau of Statistics; and author's calculations.

[1] Actual data for 1995-2009 and projections for 2010.

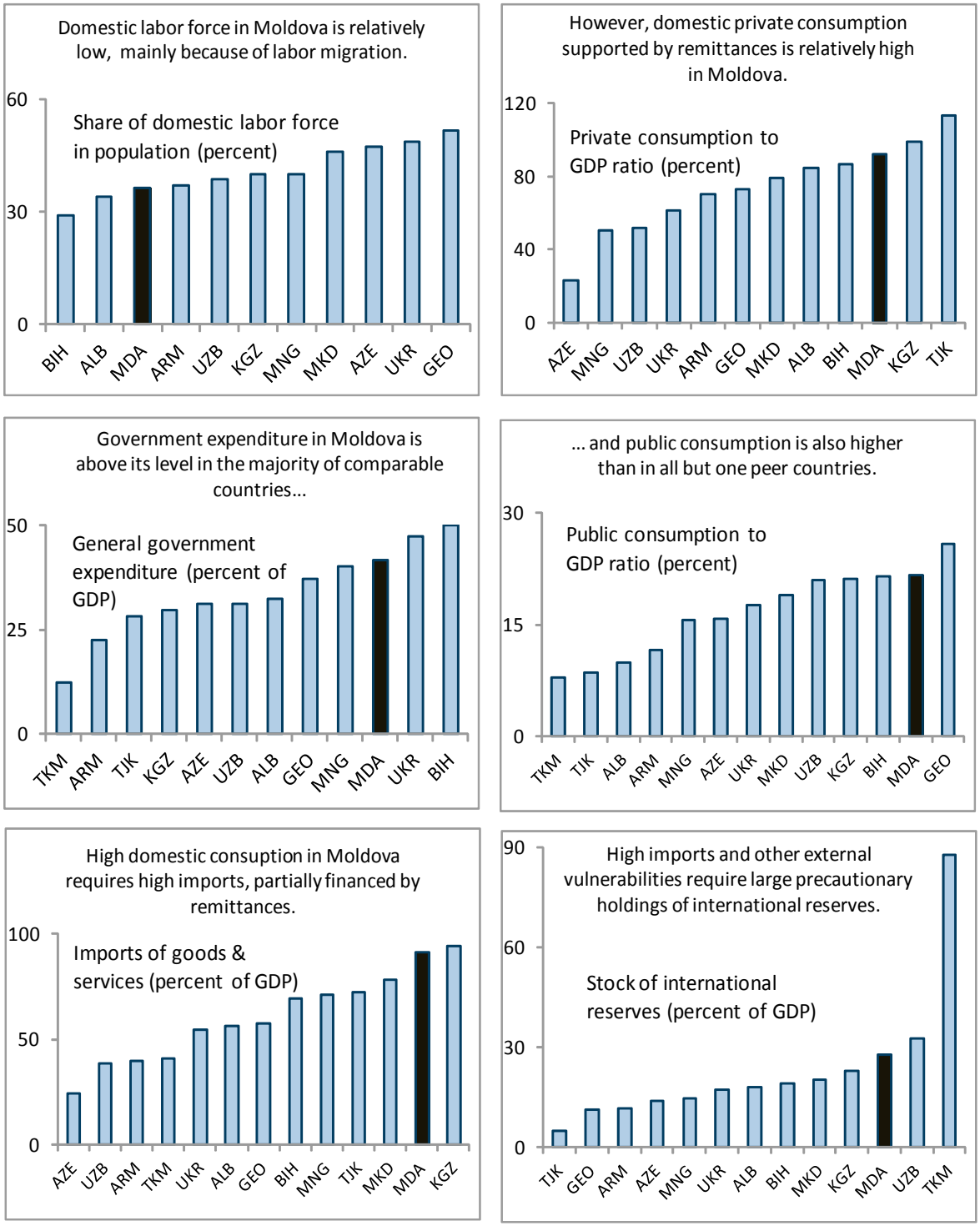
Figure 2. Moldova: GDP and Investments, 1995–2010[1]



Source: National Bureau of Statistics; and author's calculations.

[1] Actual data for 1995-2009 and projections for 2010.

Figure 3. Moldova: International Comparisons, 2008



Source: IMF World Economic Outlook Database.
Includes countries in Southeastern Europe and CIS (plus Mongolia) with GNI per capita of US$5,000 or less as of 2008 (according to World Bank's World Development Indicators).

C. Potential Growth Rate Estimates

Results of production function estimates

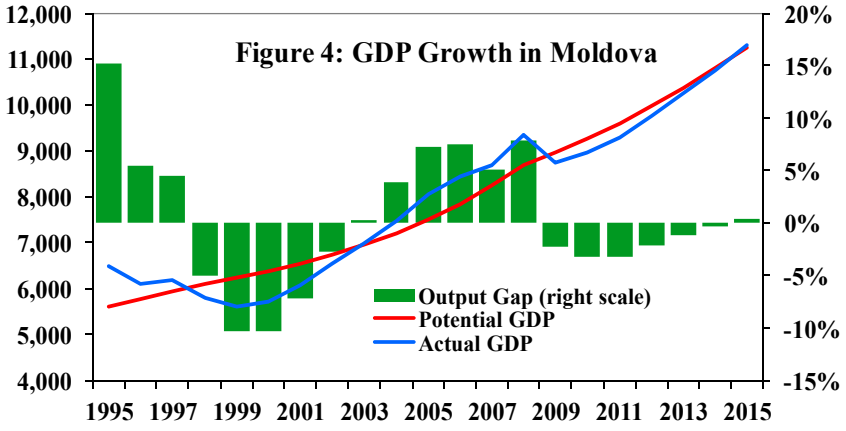
22. **After the crisis of 2009 the growth prospects of Moldova deteriorated significantly** (Table 1).[6] The higher pre-crisis GDP growth to a large extent reflected a cyclical increase in growth rates based on remittances-driven expansion of the domestic demand. The crisis led to a sharp contraction of remittances and collapse of FDI. It also prompted downward revision of medium-term projections for new private investments in Moldova, given the current global outlook. As an outcome, the crisis led to potential GDP growth rate reduction of about 2 percentage points, from the average of 5.2 percents for 2007–08 to just 3.2 percent for 2009. The estimated medium-term potential growth rate declined from about 5¼ percent just before the crisis to in the same way. While the medium-term projections of the potential GDP of Moldova complied in 2007–08 before the crisis yielded the rate of about 6 percent (not included in the table below), the current projections are for about 4 percent on average over 2010–15.

Table 1: GDP Growth and Contributions, 1996-2015
(Percent)

	1996-2000		2001-06		2007-08		2009		2010-15	
	Actual	Potential (est.)	Actual	Potential (est.)	Actual	Potential (est.)	Actual	Potential (est.)	Proj.	Potential (proj.)
Real GDP Growth	-2.4	2.5	6.7	3.5	5.4	5.2	-6.5	3.2	4.4	3.9
Contributions:										
- capital	0.4	0.3	0.9	0.9	2.5	2.8	0.7	0.9	1.4	1.6
- labor	-0.9	-1.1	-1.6	-1.2	-0.1	-1.0	-3.5	-1.0	-0.1	-0.8
- productivity	-1.9	3.3	7.4	3.8	3.1	3.5	-3.7	3.3	3.0	3.1

Source: National Bureau of Statistics; and Staff calculations.

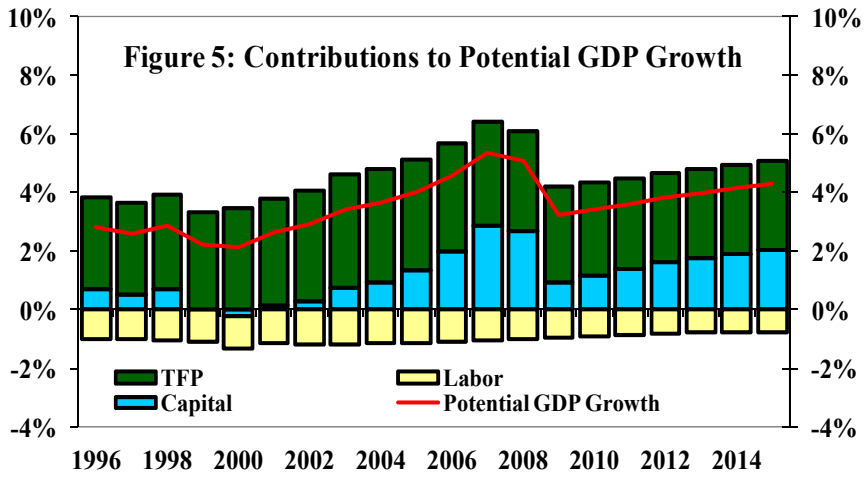
23. **Depending on the business cycle phase, the actual growth can be above or below its potential level** (Figure 4)**.** Strong growth rates in 2004–08 pushed the actual GDP above potential and—in hindsight—look unsustainably high. Increases in both actual and potential GDP in these years resulted in part from high level of new capital investments boosted by record-high FDI inflows to Moldova. When the crisis hit Moldova in 2009, the actual GDP declined sharply. At the same time, the crisis impact on the



[6] Appendix I outlines the methodology for estimating potential growth in Moldova.

main production factors was largely limited to a decline in new investments without, however, leading to decrease of the existing capital stock. Therefore, the estimated potential GDP continued to expand even in 2009, though at a lower rate. As a result, Moldova swung from a positive output gap of as much as 8 percentage points in 2008 to a negative gap of about 2 percentage points in 2009. On current projections, it will take several years after the crisis for the negative gap to close and the actual output to catch up with the potential.

24. **According to the estimates, the largest contribution to potential growth over the last decade came from increasing productivity** (Figure 5). The gains in total factor productivity (TFP) contributed 3–4 percentage points to the potential growth rates. The increasing capital stock added up to 3 percentage points to potential growth, with the highest contributions in 2007–08. At the same time, the decline in labor force—largely reflecting labor migration from Moldova to neighboring countries—subtracted roughly 1 percentage point from the potential.



25. **The estimated contributions of various factors to growth look broadly consistent with the structural properties of the Moldovan economy.** After the collapse of the Soviet Union, the virtual absence of capital-intensive industry and a structural crisis in traditional branches of economy stipulated low labor productivity levels in Moldova. High unemployment and low salaries naturally led to labor migration in search of better opportunities. The outflow of labor from low-productivity sectors (such as agriculture) to more productive sectors and to employment abroad both created a drag on growth (from the shrinking labor force) and caused large sustainable increases in productivity. The contribution of capital to growth remained relatively modest reflecting the still rather low capital stock, as for many years the new investments were barely sufficient to compensate for amortization. This is broadly consistent with recent studies highlighting dilapidated infrastructure as a major obstacle to growth in Moldova (as discussed in Section D below).

Box 1. Estimating Effects of External Loans on the Economy

For illustrative purposes, this box estimates the impact of a hypothetical large external loan provided on terms favorable for Moldova. Let us consider a loan of US$1 billion coming to finance infrastructure projects, to be disbursed in equal annual installments of US$100 million starting from 2010. Here, we concentrate on the loan's impact on economic growth and abstain from assessing its impact on the debt sustainability, which should be subject to a separate analysis.

In the aftermath of the recent economic downturn, the projects to be financed by the loan will tap into the spare capacities in the economy. In view of the relatively high unemployment and output gap in the economy projected for 2010–11, disbursements and use of up to US$100 million—with a heavy import component—would probably not add substantially to inflation or wage pressures. And in 2012 and subsequent years, the economy will likely adjust to the new loans without undue shocks. Therefore, the expected contributions to growth could add up to the "baseline" medium- and long-term projections for the GDP growth, exports and other real variables.

Estimating the impact of a large loan on economic growth requires several assumptions and estimates.

- Broadly in line with international experience, let us assume that Moldova's "domestic component" of the loan will be at least 30 percent (i.e., about 30 percent of input and even greater share of labor for the projects financed with the loan will come from Moldova itself, and the rest will be imported).
- Based on the labor productivity in the Moldovan economy, we estimate that the temporary increase in employment associated with the projects' implementation will be one person per US$ 5 thousand of the "domestic component" of the projects. For the project financing of US$100 million per year, it means some 6 thousand new jobs in 2010–16.
- During the projects' implementation years, their "domestic component" will directly contribute to Moldova's GDP, reflecting the contribution of construction activities, supplies production, and workers' wages being spent domestically.
- Because of transaction costs, however, only about 80 percent of the amount of the foreign loan will eventually convert into new capital stock in Moldova economy. The rest will cover the projects' costs not associated with increase in capital, such as work planning and monitoring project implementation.
- The projects' impact on productivity of capital and labor in Moldova will be neutral in the first two years of their implementation and moderately positive starting from the third year, when the first projects will be completed and become operational.

These assumptions make it possible to estimate the possible impact of the loan-financed projects on the economy. The projects financed by a US$1 billion loan can boost economic growth by up to 0.3–0.6 percentage points per year as compared to the baseline growth rate. In the early years this will come from direct contributions to the economic activity. In the medium- to long-term it will come from the increase in the potential GDP growth rate boosted by rising capital stock and improvements in factor productivity.

Implications for the macroeconomic outlook and policies

26. **The estimation results can inform the medium- and long-term growth projections for Moldova.** The obtained estimate of 4 percent for the potential GDP growth rate after the crisis of 2009 can be used as the baseline growth rate for projections. While growth in certain years can be above or below this level, it can be projected to converge to it over the long run, barring profound structural changes in the economy. And the possible effects of such changes as well as positive or negative output shocks to economy can be also estimated by adding or subtracting from this potential growth rate.

27. **Estimates of potential GDP and output gap provide an input for assessing the impact of cyclical economic fluctuations on the fiscal balance.** Emergence of a positive output gap normally leads to cyclical improvement of the fiscal balance, while a GDP decline below potential naturally worsens it. Estimating the contribution of the cyclical economic swings makes it possible to separate it from discretionary policy measures (Appendix II).

28. **The results can also help assess both downward and upward risks for Moldova's economic outlook.** On the positive side, improving prospects for capital investment can boost the potential growth rate. These improvements can come from higher than expected FDI inflows, higher domestic private investment, or higher public capital outlays. The financing for additional public investment can come from either reallocation of existing budget resources or external borrowing (Box 1 illustrates approaches to evaluating the impact of such foreign loans on growth). On the negative side, delays in implementing structural reforms can discourage investments and lead to resumption of labor migration from Moldova. And in the absence of new investment in the crumbling infrastructure, it may be challenging for the economy to sustain the productivity gains that made possible the economic growth of the last decade.

D. How to Boost Growth and Remove Obstacles to Development in Moldova?

Identifying obstacles to growth

29. **The available literature highlights a number of main obstacles impeding economic growth in Moldova.** The list of such obstacles often starts with the deteriorating infrastructure (dilapidated roads, inadequate electricity grid and water supply network, etc.). It also usually includes problematic legal and administrative environment for firms (i.e., inappropriate investment climate). For Moldovan companies, the small size of the local market imposes a natural constraint, while gaining access to markets of the larger neighboring countries can be not so easy. In addition, companies in Moldova often face high costs of financing (or cannot access it at all); experience shortage of skilled workers; and have to cut through "red tape" to obtain construction permits and get access to land.

30. **Facing a multitude of obstacles, it becomes tempting to select just a few critical constraints and focus on addressing them.** Based on the "Growth diagnostic" methodology

developed in Hausmann et al. (2005), two recent studies by BenYishay and Wiebe (2010) and Bozu et al. (2007) attempted to identify the most binding constraints for Moldova.[7] After careful consideration of all factors, they highlighted bad roads and inadequate irrigation in agriculture as the most binding constraints.

31. **To a large extent, analysis of the growth diagnostic studies relies on the international competitiveness rankings and business surveys.** The indicators of "Doing Business" survey compiled by the World Bank and the Global Competitiveness Report published under the auspices of the World Economic Forum (WEF) measure business and investment climate. The Country Policy and Institutional Assessment (CPIA) indicators of the World Bank evaluate the quality of the government policies. The European Bank of Reconstruction and Development (EBRD) publishes Institutional Change Indicators measuring reform progress in 29 transition countries. There are also dedicated rankings covering some particular aspects of business environment, such as Corruption Perceptions Index published by "Transparency International".

32. **Careful consideration of the main available rankings can provide some insights on where reforms are most needed (Tables 2).** The indicators from the EBRD and rankings from WEF broadly confirm that rundown infrastructure and bad roads in particular hinder Moldova's competitiveness (Tables 3 and 4). The EBRD indicators also rate Moldova low on enterpize restructuring progress and reform of securities markets and non-bank financial institutions. WEF assigns low rankings to Moldova with regard to market size, business sophistication, and innovation. The WB rankings highlight the problems that businesses face in dealing with construction permits, employing workers, getting credit, and protecting investments (Table 5). On these indicators, Moldova ranks among the last in the list of comparable countries.

Table 2. Moldova: Position in Selected International Rankings

Survey (Year)	Global Competitiveness Index (2008)	Doing Business Ranking (2009)	Corruption Perceptions Index (2009)
Publisher	World Economic Forum	World Bank	Transparency International
Position	95 out of 134	94 out of 183	89 out of 180

33. **Analyzing sub-categories of the main rankings can shed light on the likely causes of poor or good performance.** According to WB, the problems of dealing with construction permits mainly relate to the very high number of procedures involved and the long time needed to complete them. At the same time, the official costs of compliance with these procedures do not look particularly high (Table 6). Also according to the "Doing Business" rankings, Moldova compares unfavorably with peer countries on all indicators of labor

[7] These two studies presented an exhaustive list of obstacles and discussed how they affected growth in Moldova; see also World Bank (2005).

market rigidities (Table 7). At the same time, in 2008 WEF did not rate Moldova so low on the labor market efficiency (Table 4). The reason for this may be higher emphasis placed by WEF on the actual labor market practices rather than on provisions set by laws and regulations. For example, Moldova is rated high by WEF on "Cooperation in labor-employer relations", but gets a low mark on "Firing costs". Moldova's low standing with regard to the investors' protection to a large extent reflect insufficient legal grounds for enforing of shareholders' control over executive directors (Table 8). And the difficulties in accessing credit were due to the absence of credit bureaus or public credit registry and lack of information on credit histories.[8]

Table 3. Moldova: EBRD Institutional Change Indicators, 2009

	Score (0-min, 5-max)	Rank (1-best, 29-worst)
Large scale privatisation	3.00	17
Small scale privatisation	4.00	9
Enterprise restructuring	2.00	**19**
Price liberalisation	4.00	15
Trade & Forex system	4.33	1
Competition Policy	2.33	12
Banking reform & interest rate liberalisation	3.00	11
Securities markets & non-bank financial institutions	2.00	18
Overall infrastructure reform, *of which* :	2.33	17
Telecommunications	3.00	16
Railways	2.00	**20**
Electric power	3.00	14
Roads	2.00	**21**
Water and waste water	2.00	16

Source: European Bank for Reconstruction and Development (EBRD); and author's calculations.

34. **The results of the "Growth diagnostic" studies and international competitiveness rankings should be treated with a degree of caution.** While the country's position in the competitiveness rankings usually has a strong link with its already achieved level of development, the correlation with the actual or projected growth rate is difficult to find (Gorbanyov (2002)). The rankings to a large extent depend on the opinions of experts and business representatives, which may be biased or misstated. Thus it may be important to agree upfront what international indicators, if any, present the best picture of the actual situation in the country and are recognized as such by the main stakeholders. These results can be useful in attracting attention to problems in particular areas and justifying concentration of government efforts and donor assistance on addressing specific obstacles.[9]

[8] The first credit bureau was established and became operational in Moldova in early 2010. It will likely take several years before the bureau accumulates a meaningful database and the practice of using its information in the credit decisions is fully established.

[9] The paper by BenYishay and Wiebe (2010) apparently provided justification for the U.S. Millennium Challenge Corporation's financing of roads and irrigation investments.

Table 4. Moldova and Selected Countries: Global Competitiveness Report Rankings, 2008[1]

	Institutions	*Infrastructure*	*Macroeconomic stability*	*Health and primary education*	*Higher education and training*	*Goods market efficiency*	*Labor market efficiency*	*Financial market sophistication*	*Technological readiness*	*Market size*	*Business sophistication*	*Innovation*	*Global Competitiveness*
Albania	109	121	96	69	97	119	67	103	92	106	123	132	108
Armenia	96	90	83	97	94	110	45	107	112	111	120	106	97
Azerbaijan	62	61	45	102	80	89	34	92	72	73	81	40	69
Bosnia and Herzegovina	123	123	57	82	109	123	85	86	109	92	125	128	107
Georgia	69	77	118	91	84	71	22	79	97	102	112	107	90
Kyrgyz Republic	122	111	128	96	83	120	69	115	124	120	121	121	122
Macedonia, FYR	90	89	31	55	73	98	113	83	83	104	107	99	89
Moldova	**92**	**113**	**80**	**89**	**88**	**105**	**55**	**104**	**95**	**114**	**131**	**116**	**95**
Mongolia	121	133	37	94	85	109	71	110	101	124	130	102	100
Tajikistan	78	101	131	101	104	118	78	123	128	115	116	85	116
Ukraine	115	79	91	60	43	103	54	85	65	31	80	52	72
Moldova's rank[2]	**5**	**8**	**5**	**5**	**7**	**5**	**5**	**7**	**5**	**8**	**11**	**8**	**5**

Source: World Economic Forum (WEF), The Global Competitiveness Report, 2008-2009.

[1] Moldova was excluded from the 2009 ranking for lack of survey data.

[2] Rank among the 11 comparable countries included in the table (1-best, 11-worst).

Table 5. Moldova and Selected Countries: Positions in "Doing Business" Survey, 2009

	Doing Business	*Starting a Business*	*Dealing with Construction Permits*	*Employing Workers*	*Registering Property*	*Getting Credit*	*Protecting Investors*	*Paying Taxes*	*Trading Across Borders*	*Enforcing Contracts*	*Closing a Business*
Albania	82	46	173	105	70	15	15	138	66	91	183
Armenia	43	21	72	62	5	43	93	153	102	62	49
Azerbaijan, Rep. of	38	17	158	33	9	15	20	108	177	26	84
Bosnia & Herzegovina	116	160	136	111	139	61	93	129	63	124	63
Georgia	11	5	7	9	2	30	41	64	30	41	95
Kyrgyz Republic	41	14	40	47	19	15	12	156	154	54	140
Macedonia, FYR	32	6	138	58	63	43	20	26	62	64	115
Moldova	**94**	**77**	**161**	**141**	**17**	**87**	**109**	**101**	**140**	**22**	**90**
Mongolia	60	78	103	44	25	71	27	69	155	36	110
Tajikistan	152	143	177	143	78	167	73	162	179	39	100
Ukraine	142	134	181	83	141	30	109	181	139	43	145
Uzbekistan	150	92	142	95	133	135	119	178	174	44	125
Moldova's rank[1]	**8**	**7**	**9**	**11**	**4**	**10**	**10**	**4**	**7**	**1**	**4**

Source: World Bank, "Doing Business" Survey.

[1] Rank among the 12 comparable countries included in the table (1-best, 12-worst).

Table 6. "Doing Business": Dealing with Construction Permits, 2009

	Procedures (number)	Time (days)	Cost (percent of income per capita)
Albania	24	331	386.1
Armenia	20	137	104.9
Azerbaijan, Rep. of	31	207	369.6
Bosnia & Herzegovina	16	255	564.7
Georgia	10	98	21.6
Kyrgyz Republic	12	137	165.2
Macedonia, FYR	21	146	1604.8
Moldova	**30**	**292**	**120.5**
Mongolia	21	215	61.2
Tajikistan	32	250	1022.9
Ukraine	30	476	1449.3
Uzbekistan	26	260	74.8
Moldova's rank[1]	**9**	**10**	**5**

Source: World Bank, "Doing Business" Survey.

[1] Rank among the countries included in the table.

Table 7. "Doing Business": Employing Workers, 2009

	Difficulty of hiring index (0-100)	Rigidity of hours index (0-100)	Difficulty of redundancy index (0-100)	Rigidity of employment index (0-100)	Redundancy costs (weeks of salary)
Albania	44	20	10	25	56
Armenia	33	20	10	21	13
Azerbaijan, Rep. of	0	20	10	10	22
Bosnia & Herzegovina	56	13	30	33	31
Georgia	0	20	0	7	4
Kyrgyz Republic	33	20	0	18	17
Macedonia, FYR	11	20	10	14	26
Moldova	**44**	**40**	**40**	**41**	**37**
Mongolia	11	40	0	17	9
Tajikistan	33	73	40	49	30
Ukraine	33	20	40	31	13
Uzbekistan	33	33	30	32	22
Moldova's rank[1]	**10**	**10**	**10**	**11**	**11**

Source: World Bank, "Doing Business" Survey.

[1] Rank among the countries included in the table.

Table 8. "Doing Business": Protecting Investors

	Extent of disclosure index (0-10)	Extent of director liability index (0-10)	Ease of shareholder suits index (0-10)	Strength of investor protection index (0-10)
Albania	8	9	5	7.3
Armenia	5	2	8	5
Azerbaijan, Rep. of	7	5	8	6.7
Bosnia & Herzegovina	3	6	6	5
Georgia	8	6	4	6
Kyrgyz Republic	8	7	8	7.7
Macedonia, FYR	9	7	4	6.7
Moldova	**7**	**1**	**6**	**4.7**
Mongolia	5	8	6	6.3
Tajikistan	6	5	5	5.3
Ukraine	5	2	7	4.7
Uzbekistan	4	6	3	4.3
Moldova's rank[1]	**6**	**12**	**7**	**11**

Source: World Bank, "Doing Business" Survey.

[1] Rank among the countries included in the table.

Table 9. "Doing Business": Getting Credit

	Strength of legal rights index (0-10)	Depth of credit information index (0-6)	Public registry coverage (% of adults)	Private bureau coverage (% of adults)
Albania	9	4	9.9	0
Armenia	6	5	4.4	34.5
Azerbaijan, Rep. of	8	5	6.9	0
Bosnia & Herzegovina	5	5	23.2	64.3
Georgia	6	6	0	12.2
Kyrgyz Republic	10	3	0	5.9
Macedonia, FYR	7	4	28.1	0
Moldova	**8**	**0**	**0**	**0**
Mongolia	6	3	22.2	0
Tajikistan	3	0	0	0
Ukraine	9	3	0	3
Uzbekistan	2	3	2.6	2.1
Moldova's rank[1]	**5**	**12**	**12**	**12**

Source: World Bank, "Doing Business" Survey.

[1] Rank among the countries included in the table.

Targeting and measuring the progress of promoting growth

35. **A national development strategy paper can present a perspective on the growth promotion priorities**. The paper prepared in 2004 declared: "The challenge is to move from the current state of remittance based, consumption-led growth to a more balanced model, emphasizing investment and locally based import substituting and export led growth" (Economic Growth and Poverty Reduction Strategy Paper (2004), page 35). Apparently, this and many other objectives formulated in 2004 remained very relevant for Moldova ever since (see Appendix III). The next paper prepared in 2008 covered the period until 2011 (National Development Strategy (2008)). The impact of the world economic crisis and political changes in Moldova in 2009 made it necessary to revise and update this paper. The document on Moldova's priorities for medium-term development prepared in March 2010 for discussions with donors in the context of the Consultative Group meeting in Brussels became an important milestone in this process (Rethink Moldova (2010)). The main challenge in its further improvement is to set clear-cut priorities and group the proposed measures and actions around them.

36. **Regional integration is crucial for reaping the full benefits of Moldova's geographic location.** Moldova's trade with major partners passes through Ukraine and Romania, and further improving ties with these neighboring countries is critically important.

For example, upgrading the roads in Moldova can bring the best results when combined with seamless access to the road networks of its neighbors.[10] More broadly, Moldova needs to step up integration with the European Union in the West and with the CIS countries in the East. The objective is to gain access to new export markets without compromising relationship with the traditional partners and enhance the transit potential of Moldova.

37. **To measure progress towards achieving the development objectives, it is important to monitor a set of transparent targets.** Sometimes regular figures from fiscal or monetary statistics can serve for this purpose. In case such figures are not available or insufficient, it may be possible to rely on the Millennium Development Goals (MDGs) in monitoring progress with regard to social variables. Finally, it may be possible to aim for improving the country's standing on certain indicators of competitiveness as presented in the international rankings.

E. Conclusions and Policy Recommendations

38. **This paper outlines the main factors that shaped the economic growth model in Moldova in the last decade.** The growth model that emerged out of the economic transformation of the 1990s relied on domestic demand fuelled by remittances. This model led to brisk growth in the sectors producing nontradable goods and services and stagnation in most sectors producing tradables, with a few exceptions such as transit transportation.

39. **The paper highlights the risks of the current growth model that made it unsustainable.** The current growth model led to the emergence of significant external and domestic imbalances. The imbalances include a sizable trade deficit (largely financed by remittances) and an oversized public sector. The presence of such imbalances imposes additional costs on the economy and society. The costs include the need to accumulate very large international reserves and distortions in budget revenues and expenditures. Moreover, such a model is prone to disruptive boom-bust cycles. The risks have become ever more evident in the wake of the global economic crisis, when a drop in remittances led to a sharp correction of external imbalances and steep contraction of economic activity.

40. **Using the production function approach, the paper estimates the potential GDP growth rate for Moldova based on current economic trends.** The results suggest a medium-term potential GDP growth of about 4 percent. This is by 1-2 percentage points less than before the impact of the world economic crisis. According to the results, the largest contribution to potential GDP growth comes from rising total factor productivity. Investments in fixed capital also make a significant contribution. At the same time, the shrinking labor force predictably subtracts from the potential growth rate.

[10] Equally important are arrangements for safe transit of loads through the breakaway region of Transnistria.

41. **These estimates can help assess the impact of various policy decisions on the long-term economic growth.** As an illustration, the paper presented results of assessing the impact of a hypothetical large external loan provided on terms favorable for Moldova. It estimates that infrastructure projects financed by US$1 billion loan can boost economic growth by 0.3–0.6 percentage points a year as compared to the baseline growth rate. However, the loan's contribution to the economic growth should be compared with its impact on debt sustainability, in a detailed debt sustainability analysis.

42. **The paper argued for the need to diversify the growth model.** The current model based on consumption and remittances should be enhanced with the export-led growth generated by new investments in the sectors producing tradable goods and services. For Moldova, this may be the only way to boost the long-term sustainable growth rate well above 4 percent, which is important for addressing the country's vast development and poverty reduction needs.

43. **The paper outlined some macroeconomic policy challenges related to the export-led growth promotion.** To prevent erosion of external competitiveness, wage policy should maintain a close link to productivity gains, and macroeconomic policies should not lead to excessive appreciation of the national currency. Government should aim to attract large FDI and mobilize domestic investment in the sectors of economy producing goods and services for exports and competing with imports. This implies the need for considerable improvement in these sectors' attractiveness for investors.

44. **Public policies can promote growth by identifying and addressing the most binding constraints to development.** These constraints could be identified based on the international competitiveness rankings, local business surveys, and results of diagnostic studies. The available evidences highlight the importance of addressing the country's dilapidated infrastructure and bad roads in particular. They also suggest the need to streamline the procedures for issuance of construction permits and land allocation, revamp labor market laws, step up enforcement of property rights, strengthen investor protection and improve companies' access to finance. Regional integration is critically important for gaining access to the new markets and connecting to the transport networks of the larger neighbors.

Appendix I: Production Function Approach to Estimating Potential Growth in Moldova

45. **Estimating the potential growth and key factors contributing to it requires a few broad assumptions.** Following the literature (e.g., Loukoianova and Unigovskaya (2004), Dudine (2006)), we assume that the output production in Moldova can be presented with a standard Cobb-Douglass production function. This function relates output to the stock of physical capital, the labor force, and total factor productivity (TFP):

$$Y_t = A_t K_t^{\alpha} L_t^{\beta} \ , \tag{1}$$

where Y_t is output (i.e., real GDP measured in constant prices), K_t is physical capital stock, L_t is the labor force, A_t is the level of TFP, and α and β are the elasticities of output with respect to labor and capital. Taking natural logarithms of both parts of this equation, we can obtain:

$$y_t = a_t + \alpha k_t + \beta l_t \ , \tag{2}$$

where lower-case letters represent the natural logarithms of variables. Furthermore, by taking first differences, one obtains another form of the same equation:

$$\Delta y_t = \Delta a_t + \alpha \Delta k_t + \beta \Delta l_t \ , \tag{3}$$

where Δ indicates the increase at time t of the natural logarithm of a variable. Equations (2) or (3) can be directly estimated using standard cointegration or regression methods.

46. **The available data for Moldova provided data for estimating the time series for labor force and stock of capital.** For capital, we combined the data for the capital stock as of 1995 (the earliest data available), the new gross fixed investment reported in the national accounts, and a standard assumption on the physical depreciation of capital:

$$K_t = K_{t-1}(1-\delta) + I_t \, , \tag{4}$$

where δ is the rate of capital depreciation (assumed to be 5 percent), and I_t is the new gross investment in year t. For labor, we took the actual employment data reported by the NBS and smoothed them with the Hodrick-Prescott (HP) filter to eliminate fluctuations caused by the business cycle.[69]

[69] Unfortunately, using the reported historical data for the stock of fixed capital for 1995-2008 did not lead to plausible results (the resulting changes in the capital stock were negative for nearly all years), hence the need for recalculation. For labor, we also tried an alternative approach of using the total labor force data (employed

(continued)

47. **In view of short data span and multiple structural breaks during the transition period, we decided to calibrate rather than estimate the production function for Moldova.** Using the annual data starting from 1995 and even adding the projections up to 2015 gave us only 21 data points, which is usually too few for the regression analysis to produce robust results. In addition, fast structural changes in Moldova economy during the transition process and under the impact of major crises in 1998-99 and in 2008-09 did not augur well for reliability of coefficients obtained by regressions. In our regression analysis, we obtained coefficients that either did not make economic sense or were not statistically significant.

48. **The elasticities of output to changes in labor force and capital stock can be estimated using the wage bill share in GDP and the constant return to scale assumption.** We estimated the wage bill in economy by multiplying the average wage by the total employment numbers. With the ratio of wage bill to GDP increasing steadily over the last decade (Figure X), we selected its average value corresponding to 2000-08 period as the most representative for Moldovan economy:

$$\alpha = 0.54 . \tag{5}$$

We also assumed constant return to scale, which means that simultaneous increase of labor supply and capital stock would lead to a proportional increase in output:

$$\beta = 1 - \alpha = 0.46 . \tag{6}$$

49. **The TFP contribution to growth can be estimated as a residual.** With the assumptions outlined above, we estimated the contributions of the capital and labor to the output using the Equation 1. And the residual, which is the difference between estimated contribution of capital and labor and observed or projected GDP growth for each year, we assigned to the TFP contribution. To obtain the potential GDP estimates and projections, we smoothed the TFP series thus obtained using HP filter and used it in Equation 1.

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plus unemployed people) without smoothing, which led to broadly the same results in terms of potential GDP level.

Appendix II. Assessing the Contribution from Automatic Stabilizers to Fiscal Balance[70]

50. **The contribution to the change in the overall fiscal balance from automatic stabilizers can be assessed by calculating the change in the cyclical balance between two consecutive years.** The cyclical balance in year *t* can be calculated as the difference between the overall balance in percent of GDP (OB_t) and the cyclically-adjusted balance in percent of potential GDP ($CAOB_t$). The cyclically-adjusted balance in percent of potential GDP can be computed as:

$$CAOB_t = OB_t - (\eta_{Rt} - \eta_{Gt}) * GAP_t$$

where GAP_t is the output gap, calculated as the ratio of output to potential GDP minus one. η_{Rt} and η_{Gt} are revenue and expenditure budgetary-sensitivity parameters defined as:

$$\eta_{Rt} = (\varepsilon_R - 1)\frac{R_t}{Y_t} \text{ and } \eta_{Gt} = (\varepsilon_G - 1)\frac{G_t}{Y_t},$$

where ε_R and ε_G are revenue and expenditure elasticities with respect to the output gap assumed to be constant over time, and $\frac{R_t}{Y_t}$ and $\frac{G_t}{Y_t}$ are ratios of primary revenue and expenditure to GDP.

51. **Hence, the contribution from automatic stabilizers** is, effectively, the first difference (change between the two consecutive years) of the output gap multiplied by the difference of revenue and expenditure budgetary-sensitivity parameters, namely:

$$AS_t = \Delta COB_t = \Delta\left[(\eta_{Rt} - \eta_{Gt}) * GAP_t\right]$$

The estimates for ε_R and ε_G for a number of advanced OECD countries are available from Girouard and André (2005). If ε_R and ε_G are not available, revenue elasticity ε_R can be assumed to be equal to 1, thus effectively assuming that share of revenues in GDP remains unchanged, and, therefore, revenues rise or decline in line with the GDP. And expenditure elasticity ε_G can be assumed to be equal to zero, which is broadly equivalent to assuming that the budget spending is not linked to the GDP changes. This is broadly true in cases when the vast majority of regular budget spending is set in nominal terms and is not automatically adjusted in line with changes in GDP (though discretionary adjustment may be still possible).

[70] Prepared by Philippe Karam using IMF Occasional Paper (2009), Appendix V.

In addition, this implies that the spending items that can be expected to change automatically depending on the cyclical swings in economy – such as unemployment benefits – are negligibly small. In this simple case, the contribution from automatic stabilizers can be computed as:

$$AS_t = \Delta\left[\frac{G_t}{Y_t} * GAP_t\right]$$

Appendix III: Excerpt from the Economic Growth and Poverty Reduction Strategy Paper (2004-2006):

Sustainable and Inclusive Economic Growth (pages 34–35)

52. Current economic growth is based to a large extent on the export of labor. The remittances provided by this labor have led to fast growth in domestic consumption. Because of rigidities in the domestic supply of goods and services, consumption-led growth has attracted imports, widening the trade balance, and contributing to inflation. The quality of economic growth in Moldova is affected by an unbalanced structure of the economy, by monostructural exports, and by low investments in fixed capital. Such a growth paradigm does not provide a basis for the sustainable growth needed to reduce poverty.

53. The challenge is to move from the current state of remittance based, consumption-led growth to a more balanced model, emphasizing investment and locally based import substituting and export led growth. The vision for the future involves seeing remittances as a potential source of development finance and an opportunity for investment within an enhanced business environment. Better policy will encourage investment in small and medium enterprises. Import substituting and export led enterprises will generate income and employment, using improved market opportunities opening up in traditional markets, and in new markets. This process will be stimulated by the emphasis being placed in the Strategy on private sector development and an enabling, deregulated business environment, which allows business to prosper.

54. To change the paradigm and quality of growth will require mobilization of new sources and factors of growth by attracting significant investment, primarily, in the processing industry and in infrastructure, for the diversification of the structure of the economy, and the replacement of labor force export with the export of goods and services.

55. The progress and growth rate of the country's economic development will depend mainly on the business and investment environment, which is being formulated at the national and local levels. In the medium-term, it is increasingly important to improve the business and investment climate by pursuing a stable, transparent and efficient regulatory policy, by developing competition, and by supporting small and medium-sized business. This will help mobilize the domestic investment potential of the economy consisting of the labor migrants' savings, the resources of the banking system, of the shadow sector and of capital leaving the country.

56. The improvement of conditions for sustainable growth throughout the country including the recovery and development of infrastructure will be a main focus (infrastructure in this context includes roads, water supplies, heating, electricity and gas, and telecommunications). This will permit the smoothing of socio-economic imbalances between the Center and regions, and the improvement of living standards in smaller cities and

villages. The task is to emphasize the development of the economic potential of regions, as well as making business more active in localities, and attracting investments to regions.

57. Based on economic transformation similar to the above, it is estimated that annual economic growth targets of between 5–10% are feasible, 5% growth per annum being a moderate scenario, and 8–10% being an optimistic scenario. Analysis in the macro section (…) supports the view that these targets are feasible.

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