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REPUBLIC OF KOSOVO

SELECTED ISSUES

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Approved By
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CONTENTS

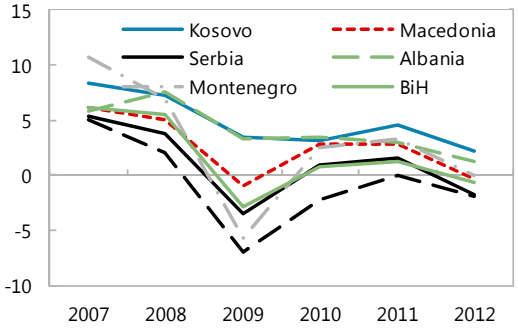
GROWTH AND KOSOVO'S EXTERNAL ENVIRONMENT[1]

Robust remittances and FDI inflows from a Diaspora, hosted mainly in Germany and Switzerland, and limited financial and export linkages to crisis countries, account for much of Kosovo's resilience to external turbulence. Kosovo's dependence on—and vulnerability to—developments in host countries is confirmed by vector autoregressions. Econometric analysis shows that remittance transfers to Western Balkan countries have been driven mostly driven by host country conditions.

A. Recent Growth Performance in a Regional Context

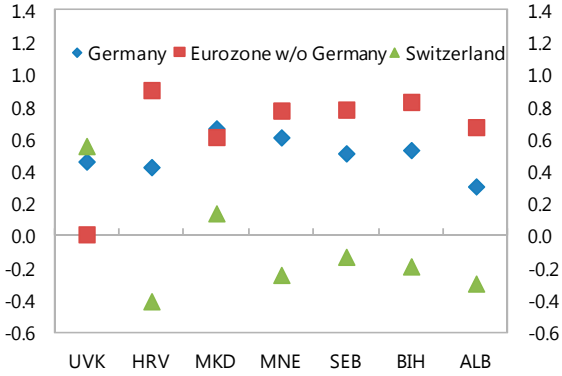
1. Kosovo's economy has performed well in the face of headwinds from the global financial crisis and euro area turbulence. In the wake of the global financial crisis, Kosovo's economic growth slowed but remained positive, while most other Western Balkans slipped into recession. Moreover, the annual average growth rate has been among the highest in the Western Balkans since the onset of the financial crisis in 2007.

Real GDP growth in the Western Balkans



2. Simple cross-country growth correlations for 2001-2011 show that Kosovo's economic activity is correlated with that of Germany and Switzerland—where about two-third of Kosovo's Diaspora live—but uncorrelated with economic activity in the rest of the euro area.[2] This pattern differs markedly from the other Western Balkan countries whose GDP growth is highly correlated not only with Germany, but also with activity in the rest of the euro area.

Nominal GDP growth correlations with Europe



Sources: World Economic Outlook and IMF staff calculations.

3. This chapter analyzes in more depth the link between activity in Kosovo and the external environment. Section B asseses spillovers with a vector auto regression model (VECM), linking Kosovo's imports—a proxy for domestic demand—to external conditions. Section C looks in more detail at remittances and FDI from the Diaspora and their role for growth.

[1] Prepared by Nina Budina, Ghada Fayad and Xingwei Hu.

[2] Data are for the annual growth in nominal GDP, expressed in euro.

B. Assessing Spillovers from External Shocks

4. Spillovers to Kosovo's economic activity from shocks to Diaspora host countries are being assessed using a vector error correction (VECM) model for readily available, high-frequency indicators for the Kosovar economy (imports, private sector credit and bank deposits), and Germany's GDP (as a proxy for economic conditions in Diaspora host countries). The VECM model restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationship while allowing for short-run adjustment dynamics: [3]

$$\Delta y_t = \alpha\beta' y_{t-1} + \Gamma_1 \Delta y_{t-1} + \ldots + \Gamma_{p-1} \Delta y_{t-p+1} + e_t$$

where y_t *is a* vector of endogenous variables, β is the cointegrating vector of coefficients, α is the coefficient vector measuring the speed of adjustment to equilibrium, Γ s are the coefficient matrices of the lagged Δy_t and e_t is a vector of residuals. Unit root tests indicate that all variables (imports, German GDP, private sector credit and bank deposits) are integrated of order one. Furthermore, Johansen's test does not reject the presence of at least one cointegrating relationship. The finding is supported by the Engel and Granger test, rejecting the null hypothesis that the residuals of the cointegrating vector have unit root. Under the (provisional) assumption of cointegration between the series, the importance of German GDP for Kosovo's imports is confirmed by the Granger causality test. [4]

5. The results indicate that imports—used as a proxy for domestic demand—are linked in a long-term, dynamic equilibrium relationship with German GDP and bank deposits. The estimated long-run elasticity of imports to German GDP—which proxies Diaspora's host country conditions—is positive and significant under both models: Johansen's and the two-step model by Engel and Granger.[5] Moreover, the long run coefficient on bank deposits is also significant and positive under both methodologies.[6] Results also indicate that transmission of shocks to domestic demand is fairly rapid, as evident by the highly significant adjustment coefficient on the error-correction term in the equation for the dynamics of imports.

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[3] The cointegration term is known as the *error correction* term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments. All the variables are integrated of order one in levels and stationary in first differences. The choice of lag structure is based on lags exclusion test.

[4]Granger-causality test, which provide preliminary insights into possible 'causal' links between the variables, strongly rejected the null hypothesis that German GDP does not granger cause Kosovo's imports.

[5] VECM results have been compared to the estimated single equation framework based on the two-step Engle-Granger (1987) methodology as a robustness check. Note that the null hypothesis of unitary elasticity of imports with respect to German GDP could not be rejected, suggesting that both methodologies yield very similar coefficients. VECM results have been also compared with the results of simultaneous autoregressions (VAR) and the EC vector system estimation. The system equation approach has added flexibility in that it can eliminate non-significant regressors.

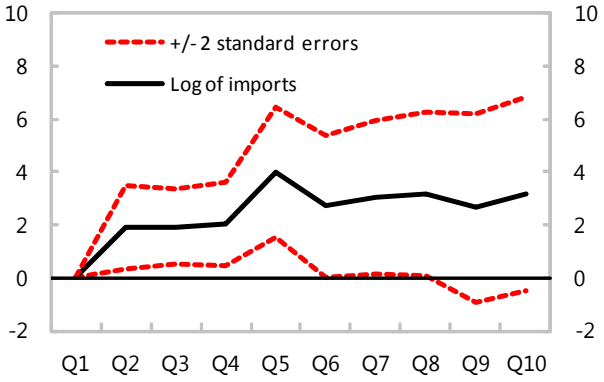
[6] This is also supported by the Granger causality test, which strongly rejects the null that imports do not Granger cause deposits.

ECM Estimation Results for the dynamics of Imports 1/, 2/, 3/								
	Trace test (Johansen)/ADF test (Engel &Granger) statistics	Slope coefficients, **β**, of the cointegrating vector				Speed of adjustment, **α**, coefficient	Lagged GDP growth of Germany	
		Imports	DEU_GDP	Deposits	Trend	dlog(Imports)	dlog(DEU(-1))	dlog(DEU(-4))
Johansen (VECM)	26.843 **	1	-0.964**	- 0.79***	Linear	-0.604**	1.351*	1.776**
Engle-Granger (two-step procedure)	-4.906***	1	-1.422***	-0.389**	Linear	-0.537**	0.837*	1.402*
System estimation 4/	-3.181**	1	-0.875**	-0.682***	No	-0.481***	1.285***	2.276***

*Note: *, **, *** indicate significance at the 10%, 5% and 1% thresholds, respectively. In the trace test, the null hypothesis is that there is no cointegrating vector against the alternative that there is one. In the ADF tests, the null hypothesis is that the residuals of the long-term*
1/ Estimated for quarterly data over 2002Q4 – 2012Q4. All the variables are seasonally adjusted to remove seasonality present in quarterly data and expressed in logarithmic terms to remove non-linearilities.
2/All the variables are integrated of order one in levels and stationary in first differences.
3/ See Johansen (1991), (1995) and Engle and Granger (1987).
4/ Estimates vector autoregressions (VAR) and the EC vector simultaneously. ADF test is used to test for stationarity of the EC series.

6. The model's impulse response functions confirm Kosovo's dependence on—and vulnerability to—developments in host countries. A shock to quarterly growth in Germany affects Kosovo's imports by a factor of about three over two years (imports are used as a proxy for domestic demand). The total cumulative impact on imports has two components: (i) the long-run error-correction term (αβ), which contributes by a factor of 0.6 to the next quarter's import growth, and (ii) the short term dynamics of imports, which largely and positively depends on the lagged GDP growth in Germany (the Γ coefficients that contribute a factor of 1.35 in the second quarter and of 1.78 in the fifth quarter).

Spillovers from a shock to activity in Germany 1/



Sources: Statistical Agency of Kosovo, IMF staff calculations.
1/Shows an impulse-response function tracing out the accumulated impact (in percent) of a one percent shock to the GDP growth rate of Germany on Kosovo's imports (in logs).

C. Determinants of Remittances in the Western Balkans

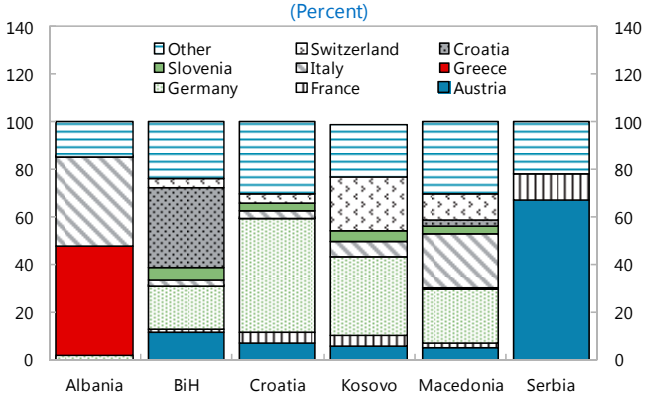
7. An understanding of the factors driving remittances is of critical importance for analyzing growth dynamics, given the role that remittances play in supporting incomes and economic activity in Kosovo. In this section, the elasticities of remittances to changes in host- and home country conditions are estimated, using panel data for 6 Balkan countries for 1999–2011. Specifically, remittances are regressed on measures of home and host country GDP per capita. Host country GDP is proxied by using euro area (EA) GDP, as Balkan emigrants are unevenly spread across the different EA countries. Germany was the main source for remittances to Croatia, Kosovo and to a lesser extent Bosnia and Herzegovina and Macedonia, while the majority of Serbia's remittances

originate from Austria. Remittances from the EA periphery (i.e. Greece and Italy) are high for Albania and Macedonia.

8. Host country per capita income plays a key role in driving remittances (as is often found in the literature). There is also evidence for an altruistic motive to remittances, as shown in the positive coefficient on the income gap variable (column 2) and the negative coefficient on home country GDP per capita (column 1). Emigrants' remittances are thus stronger at times when home country income levels are lower. The results are maintained if one proxies for host country with Germany's GDP per capita instead of EA GDP per capita.

Decomposition of Remittances by Source Country, 2011

(Percent)



Sources: World Bank Bilateral Remittances Matrix and Central Bank of Kosovo.

Determinants of Migrants' Remittance Transfers in the Balkans, 1999-2011

Dependent variable: Remittances per Capita$_t$	(1)	(2)
Home Country GDP per capita$_{(t-1)}$	-0.49*	
Host Country GDP per capita	2.67**	
Host-Home GDP per Capita diff$_{(t-1)}$		1.75**
Observations	68	68
R-squared	0.22	0.29
Country FE	YES	YES

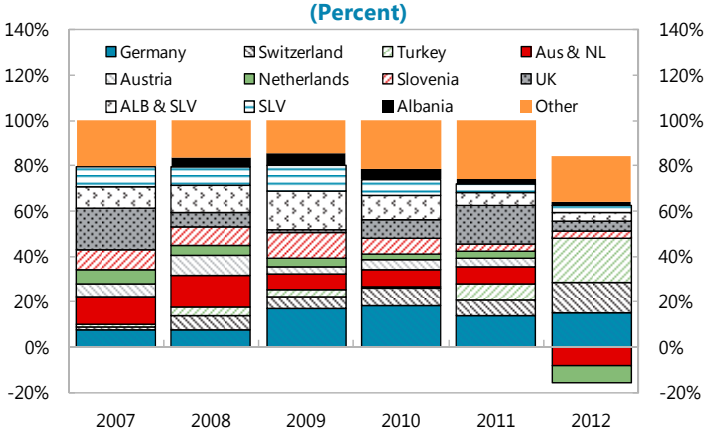
[a]*significant at 10 percent level; **significant at 5 percent level; ***significant at 1 percent level.
[b]All variables are expressed in logarithmic terms. Regressions include constants and are estimated with robust standard erros. In equations including home country GDP on the right side, we use lagged values to attenuate reverse causality bias.
[c]We control for home and host realinterest rates in regression (1) and for their differential (host-home) in regression(2) to capture the investment motive to remittances. The latter has the expected negative sign but is statistically insignificant.

9. In addition to remittances, there is evidence of complementarity between emigration and FDI.[7] Several channels are at play. First, the presence of an educated Diaspora provides foreign investors with a much needed knowledge of local markets, which helps breaking barriers to long-term inward foreign investments. Second, unskilled migrants can also increase FDI by revealing workforce characteristics such as productivity of labor force and decreasing cross-border information costs and FDI-related country risk premium. Third, migration could also provide

[7] See Javorcik and others (2010); Kugler and Rapoport (2007) for supportive empirical evidence.

unskilled migrants with the necessary human and physical capital to invest in their home countries, an opportunity that would not be possible without migration. This seems to be the case for Kosovo: Germany, Switzerland and UK, which in 2011 accounted for over half of remittance transfers to Kosovo, have over the years contributed to about 40 percent of overall yearly FDI inflows since 2007.

Source countries of FDI (Percent)



Source: Central Bank of Kosovo.

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TAX REVENUE STRUCTURE AND TRADE LIBERALIZATION[1]

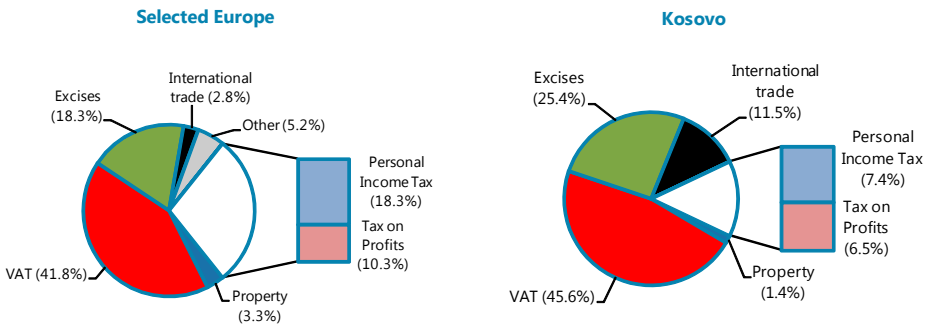
While highly skewed towards indirect taxation, Kosovo's tax system is revenue effective. The import-heavy, transfer-dependent nature of the economy, and a well designed VAT system support tax collection, but its revenue structure is still heavily dependent on trade tax revenues. While econometric analysis does not provide robust evidence of replacement of trade taxes with domestic revenue in the region, further trade liberalization in Kosovo may be hindered unless alternative sources of revenue are developed in the mid-to long-term. A summary of alternative options is provided.

A. Introduction

1. Kosovo's tax-to-GDP ratio is comparable to the average of Southeastern Europe, although its tax system relies significantly more on indirect taxation—including a high share of trade taxes. Average tax revenue[2] for the period 2006–11 was about 22 percent of GDP (Table 1). The structure of Kosovo's tax system is heavily tilted towards indirect taxes—as in Bosnia and Herzegovina, Croatia, Montenegro, and Serbia—with more than 80 percent of tax revenue coming from this source. In particular, import duties account for about 2.5 percent of GDP and 11.5 percent of tax revenue. By contrast, the contribution of direct taxes (including income tax and property taxes), is about half the regional average.

Tax Structure

(in percent of total tax revenue)



Sources: Government Financial Statistics (GFS); and Kosovo authority.
1/ Countries as included in first table.

[1] Prepared by Ernesto Crivelli.

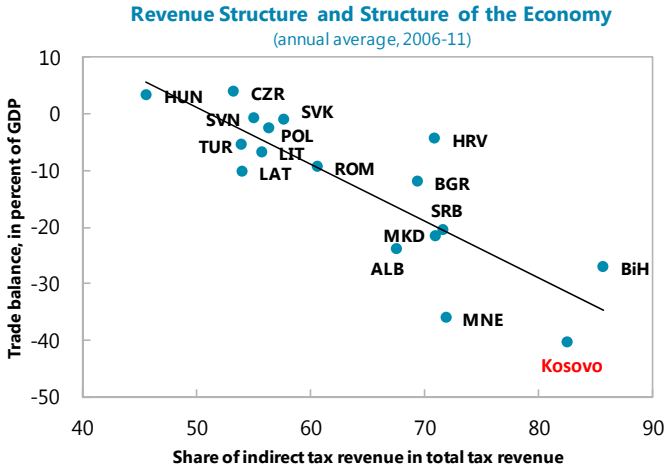
[2] Excluding revenue from social security contributions.

2. Kosovo's reliance on trade taxes may create budgetary pressures in the event of further trade liberalization. Kosovo has introduced a liberal trade regime as part of the regional trade liberalization process. It has signed free trade agreements (FTA) with Albania, Macedonia, Bosnia and Herzegovina, and Croatia. More recently, the Central European Free Trade Agreement (CEFTA) was extended to the West Balkan countries, and Kosovo acquired full CEFTA membership. At present, Kosovo is negotiating a FTA with Turkey. While trade liberalization may be beneficiary in many respects, the literature suggests that any further step in this direction would reduce trade tax revenues, possibly more in the advanced stages of trade liberalization.[3]

3. This paper assesses the main elements of Kosovo's tax system in a regional perspective, analyses the challenges to tax collection in the context of further trade liberalization, and provides some tax policy recommendations for strengthening revenue mobilization. The paper is organized as follows. Section B summarizes the rationale behind the current tax structure in Kosovo. Section C presents an econometric analysis on possible replacement between domestic and trade taxes in a panel of southeastern European economies. Section D provides policy recommendations and concluding remarks.

B. The Rationale Behind Kosovo's Current Tax Structure

4. Kosovo's reliance on indirect taxes is compatible with the import-heavy, transfer-dependent nature of the economy. Government revenue is heavily tilted toward indirect taxes, with more than 80 percent of receipts stemming from VAT, excises, and customs duties. This revenue structure is well aligned with the nature of Kosovo's economy, with a share of imports-to-GDP of about 60 percent, a trade deficit of roughly 40 percent of GDP, and recorded remitances of about 14 percent of GDP, the largest in the western Balkans.



5. A large portion of indirect taxes is collected at the border, which has proven fairly revenue effective. Revenue collection at customs contributes to 80 percent of total tax revenue—specifically all excises and ¾ of VAT. This renders revenue collection fairly productive and lessens the risk of evasion. VAT collection is expected to be stronger, all else equal, in economies with a heavier reliance on international trade.[4]

[3] See Keen and Baunsgaard (2010)

[4] See Ebrill et al. (2001).

VAT productivity in Kosovo–measured by its c-efficiency—is above average for both the region and a sample of small open economies.[5]

Tax structure, selected European countries, 2006-2011 (In percent of GDP) 1/

	Total Revenue	Tax Revenue	Other Revenue	Taxes on Income, Profits, and Capital Gains				Property Taxes	Domestic Taxes on Goods and Services			Trade Taxes	Other Taxes	Social Security
				Total	of which:				Total	of which:				
					Individual	Corporations	Unallocable			VAT	Excises			
Kosovo	**26.3**	**21.7**	**4.6**	**3.5**	**1.6**	**1.4**	**0.5**	**0.3**	**15.4**	**9.9**	**5.5**	**2.5**	**0.0**	**...**
Albania	26.0	19.4	2.7	3.9	1.9	2.0	0.0	0.3	12.2	9.3	2.9	0.9	2.1	3.9
Bosnia & Herzegovina	40.1	23.3	2.4	3.0	0.7	0.7	1.6	0.4	17.9	13.9	4.0	2.1	0.0	14.4
Bulgaria	35.7	22.1	7.2	5.4	2.9	2.5	0.0	1.4	15.0	9.6	5.4	0.3	0.0	6.4
Croatia	38.6	22.3	4.6	5.4	2.9	2.5	0.0	0.4	15.3	11.7	3.6	0.5	0.7	11.7
Czech Republic	40.9	20.1	5.0	8.1	3.9	4.2	0.0	0.4	10.7	6.9	3.8	0.0	0.9	15.8
Hungary	45.8	26.1	7.2	9.5	7.3	2.2	0.0	0.9	11.9	8.1	3.8	0.0	3.8	12.5
Latvia	36.7	20.0	8.0	8.1	6.0	2.1	0.0	0.6	10.6	7.2	3.4	0.2	0.5	8.7
Lithuania	34.3	19.2	4.4	7.7	5.2	2.2	0.3	0.4	10.7	7.6	3.1	0.0	0.4	10.7
Macedonia 2/	31.6	20.3	1.6	4.1	2.5	1.6	0.0	0.4	12.8	8.8	4.0	1.6	1.4	9.7
Montenegro	41.0	24.9	6.4	5.0	3.7	1.3	0.0	0.6	16.3	12.0	4.3	1.6	1.4	9.7
Poland	39.3	21.3	6.2	7.3	4.9	2.4	0.0	1.2	12.0	7.9	4.1	0.0	0.8	11.8
Romania	32.4	18.4	4.6	6.0	3.4	2.6	0.0	0.7	10.9	7.9	3.0	0.3	0.5	9.4
Serbia	41.6	25.0	3.0	6.2	5.0	1.2	0.0	0.7	16.0	11.3	4.7	1.9	0.2	13.6
Slovak Republic	32.8	17.0	3.7	5.6	2.5	2.8	0.3	0.4	9.8	6.8	3.0	0.0	1.2	12.1
Slovenia	41.0	22.9	3.7	8.1	5.8	2.3	0.0	0.6	12.3	8.5	3.8	0.3	1.6	14.4
Turkey	32.1	19.1	7.2	5.7	3.9	1.8	0.0	1.0	10.0	5.2	4.8	0.3	2.1	5.8
Unweighted average 3/	36.9	21.3	4.9	6.2	3.9	2.2	0.1	0.7	12.8	8.9	3.9	0.6	1.1	10.7

Sources: Government Financial Statistics (IMF), and country documents.
1/ General Government
2/ 2006-2008
3/ Excluding Kosovo

6. While the structure of the economy matters, a well designed VAT system has reinforced its revenue performance. Kosovo's VAT system is consistent with EU standards; it is single-rated—with the lowest rate in the region—, and has a very limited number of exemptions. The threshold for compulsory registration of EUR 50,000—the highest in the region—excludes importers and exporters that are required to register for VAT, and thus appears to be justified in order to avoid high collection costs for small taxpayers.

7. Direct taxation in Kosovo, by contrast, is low compared to other southeastern European countries. Revenue from taxes on income is about 3.5 percent of GDP, while property tax—collected at municipal level—is less than ½ percent of GDP. Altogether direct taxes make up about half the revenue collected in the region from this source. The low revenue performance on income taxes is due to a combination of low tax rates—CIT current rate is 10 percent—, lack of sufficient progressivity in the structure of the personal income tax, and narrow tax bases, to some extent due to a large informal sector. Regarding property taxation, while important steps are being taken in improving property registration, its revenue productivity is low, due to both low rates and insufficient compliance efforts.

[5] Including a sample of 31 countries with population below 5 million and a VAT system.

VAT Rates, Revenue, and Productivity in Selected southeast Europe, 2006–2011

	Current standard VAT rate	Current other possitive rates	Total VAT revenue (Average 2006-2011)		Revenue Productivity 2/ Based on	
	(In percent)		(In percent of final consumption)	(In percent of GDP)	Final consumption	GDP
Kosovo	**16.0**		**9.0**	**9.9**	**0.56**	**0.62**
Albania	20.0	10.0	9.8	9.3	0.49	0.47
Bosnia and Herzegovina	17.0		13.4	13.9	0.79	0.82
Bulgaria	20.0	9.0	12.0	9.6	0.60	0.48
Croatia	23.0	10.0	15.1	11.7	0.66	0.51
Czech Republic	21.0	14.0	9.8	6.9	0.46	0.33
Hungary	27.0	5.0; 18.0	10.8	8.1	0.40	0.30
Latvia	22.0	12.0	8.9	7.2	0.40	0.33
Lithuania	21.0	5.0; 9.0	8.9	7.6	0.43	0.36
Macedonia	18.0	5.0	9.3	8.8	0.52	0.49
Montengro	17.0		11.2	12.0	0.66	0.71
Poland	23.0	5.0; 8.0	9.9	7.9	0.43	0.34
Romania	24.0	7.0	9.8	7.9	0.41	0.33
Serbia	18.0		12.0	11.3	0.67	0.63
Slovak Republic	19.0	10.0	8.9	6.8	0.47	0.36
Slovenia	20.0	8.5	11.5	8.5	0.58	0.43
Turkey 3/	18.0	1.0; 8.0	6.1	5.2	0.34	0.29
Unweighted Average 4/	20.5		10.4	8.9	0.52	0.45

Sources: IMF, Country documents; Government Finance Statistics (IMF)

1/ General governemnt.
2/ Revenue productivity = Total VAT revenue as percentage of consumption or GDP, divided by the VAT standard rate.
3/ In Turkey 26 percent and 40 percent rates apply to luxury goods.
4/ Excluding Kosovo.

C. Revenue Replacement with Trade Liberalization: Empirical Analysis

8. Kosovo's share of trade taxes is the largest in the region, which would create budgetary pressures in the event of further trade liberalization. Import duties account for about 2.5 percent of GDP and 11.5 percent of tax revenue. While econometric evidence is mixed—depending on the level of economic development and the stage of trade liberalization—it suggests that countries may face difficulties to make up for revenue losses from trade taxes, in particular in the short-term.

9. The empirical analysis assesses the potential for revenue replacement from any loss of revenue from trade taxes that countries have experienced. Using data for the selected 17 countries in the region over the period 1992-2010, this paper estimates the impact on domestic

tax revenue for a given change in trade-related tax revenue, as in Baunsgaard and Keen (2010). The estimating equation takes the form:

$$D_{it} = \alpha_i + \beta_0 D_{it-1} + \beta_1 T_{it} + \beta_2 X_{it} + \mu_t + \varepsilon_{it}$$

where *D* is domestic tax revenue, *T* is trade tax revenue, expressed in percent of GDP, and *X* is a vector of control variables. Estimators used are fixed-effects, difference- and system-GMM. All regressions include country- and year-dummies. A negative coefficient for the trade tax variable would imply positive contemporaneous replacement.

10. Econometric results for the region find no robust evidence that trade taxes would have been replaced with domestically raised taxes.

- Turning first to the control variables, the pattern of coefficients is broadly as expected: the overall development of the economy—measured by GDP per capita—is expected to show a positive correlation with revenue because of a higher degree of economic and institutional sophistication. A higher share of agriculture in value-added is expected to be negatively associated with revenue because agriculture is harder to tax, particularly if carried out informally. The degree of trade openness—measured as the sum of the share of imports and exports in GDP—can present either sign, but in transition economies a negative association with revenue is likely due to the negative impact of competitiveness on prices and margins. Finally, inflation, important in the first years of transition, has potentially powerful positive revenue effects.[6]

- With respect to the relationship between domestic and trade tax revenue, contemporaneous replacement emerges as non-significant, independent of the chosen

Econometric Results a/

	(1) Fixed effects	(2) Difference GMM[b]	(3) System GMM[c]
Lagged domestic tax	0.698***	0.073*	0.849***
	(0.051)	(0.051)	(0.067)
Trade taxes	-0.213	-0.262	0.067
	(0.163)	(0.383)	(0.153)
Ln(PCGDP)	0.0005**	-0.000	0.002***
	(0.0003)	(0.063)	(0.000)
OPEN	0.0001	-0.0007**	-0.0002**
	(0.000)	(0.0003)	(0.0001)
Ln(INF)	0.0002**	0.039**	0.0143*
	(0.0001)	(0.020)	(0.0095)
AGR	-0.0004*	-0.0005**	-0.0004**
	(0.0002)	(0.0002)	(0.0002)
D(GDP)	-0.007	0.037	0.004
	(0.023)	(0.141)	(0.064)
Serial correlation (p value)	0.478		
M1 (p value)		0.541	0.024
M2 (p value)		0.186	0.181
Over-identification (p value)		Hansen: 1.0 Sargan: 0.87	Hansen: 1.0 Sargan: 0.06
No. of observations	241	220	241
No. of instruments		38	76
No. of countries	17	17	17

Notes:
[a] Dependent variable is ratio of domestic tax revenue to GDP. Full set of year dummies in all regressions. Robust standard errors, in parenthesis; ***(**,*) indicate significance at 1(5,10) percent.
[b] One step, instruments based on second lags of Domestic and Trade Tax.
[c] One step, instruments based on first lag of differences in Domestic and Trade Tax in levels equation and second lags of their levels in the differences equation.

[6] In addition, real GDP growth was included to isolate changes in fiscal policy which are not related to the current state of the economy that is, on the component of fiscal policy that does not respond systematically to output conditions.

model specification.[7] While the time frame under analysis is probably too short to capture long run replacement potential, the results clearly point to challenges in the substitution of trade taxes in the region in the short run.

D. Policy Options and Concluding Remarks

11. While currently effective in term of revenue collection, Kosovo's tax structure may present future challenges due to increased trade liberalization. Kosovo's revenue structure is heavily tilted towards indirect taxes, and in particular still relies significantly on import duties. The empirical evidence suggests that replacement of lost trade tax revenue may be difficult.

12. In the short-term options include strengthening further VAT and excise taxes. Losses in revenue from customs duties—that upcoming free trade agreements would likely phase in—could be replaced with VAT and excises, both taxes with still relatively low rates in Kosovo. While broadening the tax base is desirable, a reduction in the VAT registration threshold should only be considered once the tax administration has built the needed capacity to avoid creating an unnecessary burden without clear gains in revenue terms.

13. A gradual shift to direct taxation appears appropriate in the medium-to long-term, as domestic production increases. A higher share of direct taxes is both, desirable—given the need to replace the potential loss from trade taxes—and potentially aligned with the gradual shift in the structure of the economy to higher domestic production. The structure of tax rates could be reviewed—with both corporate and personal income tax rates low by regional standards—along with the progressivity in the structure of the personal income tax. Broadening of the tax bases, by avoiding unnecessary tax exemptions is necessary (see IMF, 2011) Further improvement of the recurrent property tax system is a must, in particular in the context of increased fiscal decentralization that may result hindered if local governments are not effective at strengthening administration and compliance capacity.

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[7] Alternative specifications to allow interaction with dummy variables capturing the adoption of a VAT system, or the run-up to join the EU have turn equally statistically insignificant.

EUROIZATION, LIQUIDITY NEEDS, AND FOREIGN CURRENCY RESERVES[1]

In Kosovo's unilaterally euroized economy, the government's deposits with the central bank are the principal instrument to safeguard an adequate level of reserves, and therefore to insure both the public sector and the financial system against liquidity shocks. This chapter discusses operational and analytical challenges in managing reserves in economies with a foreign legal tender, develops a yardstick for bank balance adequacy, and finally explores alternatives to government deposits as the main funding mechanism for reserves.

A. Foreign Currency Reserves in a Unilaterally Euroized Economy

1. Kosovo is one of 13 IMF members that have adopted a foreign currency as legal tender. Using another country's currency provides for a strong monetary anchor and reduces administrative costs associated with running an own currency. At the same time, the country foregoes seignorage, and the arrangement puts a premium on disciplined fiscal policies, competitive wage levels, and flexibility of the economy to adjust to external shocks.

IMF Members with a Foreign Legal Tender

	Population (millions)	GDP 1/ (billions of USD)
U.S. Dollar (8)		
Ecuador	15.4	80.9
Zimbabwe	13.2	9.8
El Salvador	6.1	23.8
Panama	3.6	36.3
Timor-Leste	1.2	4.2
Micronesia	0.1	0.3
Marshall Islands	0.1	0.2
Palau	0.02	0.2
Euro (3)		
Kosovo	1.8	6.2
Montenegro	0.7	4.3
San Marino	0.03	1.9
Australian Dollar (2)		
Kiribati	0.1	0.6
Tuvalu	0.01	0.04

Source: IMF (2012), *Annual Report on Exchange Rate Arrangements and Exchange Rate Restrictions,* and CIA Facebook. Data are typically for end-2012

1/ Market exchange rates

2. Use of a foreign tender comes with unique operational and analytical challenges for the management of foreign currency (FX) reserves.

- First, *every* liquidity need in the economy is in FX. i.e., cannot be satisfied through domestic liquidity generation (such as traditional lender-of-last resort operations of the central bank).
- Second, the standard mechanism to accumulate reserves—issuance of base money to purchase FX assets—is not available.
- Third, the definition of FX reserves is somewhat unusual. The IMF BOP manual defines reserve assets as "*external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs … Reserve assets must be foreign currency assets*" (IMF, 2011a, p. 111). With use of a foreign tender, *all* central bank assets are in FX—hence ready availability is the main identifying criterion.

[1] Prepared by Johannes Wiegand. The chapter builds on earlier work joint with Pablo Druck and Eduardo Castro.

3. The central bank of Kosovo (CBK) considers assets readily available if no non-government institution has a claim to them. *N*ot readily available are, e.g., assets administrated on behalf of the Kosovo privatization fund, or the assets in which commercial banks' reserves (both mandatory and excess) are invested. This criterion renders FX reserves easier to identify from the liability than from the asset side of the central bank balance sheet. In Kosovo, reserves are limited to (i) the central bank's capital, (ii) Kosovo's SDR allocation received in the context of the 2009 quota increase, and (iii) the government's deposits with the central bank.

Stylized Central Bank Balance Sheet

Standard Case		Central Bank of Kosovo	
Assets	Liabilities	Assets	Liabilities
Reserves Assets	Base Money	Reserves Assets	~~Base Money~~
Other FX Assets	Government Deposits	Other FX Assets	Government Deposits
Domestic Currency Assets	Other Deposits	~~Domestic Currency Assets~~	Other Deposits
	Capital		Capital

4. As capital and the SDR allocation are fixed (at least in the short term), **the government's deposits with the CBK are the main instrument to ensure reserves adequacy**. A reserves adequacy target therefore translates into a target for the government's bank balance. This correspondence is not inevitable, however, but the result of Kosovo's institutional setting (see section C below).

B. How Large Should Kosovo's Reserves Be?

5. Traditional reserves metrics—such as coverage of a certain number of months of imports, or of a percentage of short-term external debt—do not fit the Kosovo case well. Imports tend to adjust endogenously to remittances and FDI inflows, and do therefore not give rise to a FX financing need. There is also no traded external debt. At the same time, there are other sources of potential FX liquidity needs that are captured by neither metric.

6. A recent IMF paper developed richer metrics for reserves adequacy (IMF, 2011b). The metrics consider several complementary sources of BOP needs, and are oriented on observed reserves holding patterns across countries. While there is no explicit treatment of countries with a foreign legal tender, for countries with a fixed exchange rate—that share many characteristics—the paper recommends the following yardstick:

$$Reserves_{Peg} = 30\,\%\,of\;STD + \;15\%\,of\;OPL + 10\,\%\,of\;M2 + 10\,\%\,percent\;of\;X,$$

where STD is short-term external debt at remaining maturity, OPL are other external portfolio liabilities, M2 is broad money, and X is exports. The reserve buffer related to STD insures against disruptions in debt markets, OPL against equity outflows, M2 against a possible depositor run, and X against trade disruptions.

7. Several modifications are needed to transform this yardstick into an operational government bank balance (BB) target.

- With unilateral euroization there is no *base money*, hence M2 is replaced with deposits.
- Kosovo's *traded debt* consists exclusively of t-bills. While these bills are held mostly by domestically incorporated banks, they are denominated in FX; hence, a FX liquidity buffer is needed to insure against debt market disruptions. The term for short-term external debt is therefore replaced by one for short-term public debt.
- There are no *other portfolio liabilities*, hence this term is omitted—as is the trade term (X), for the reasons sketched above.
- At the same time, the government needs a *fiscal buffer* to insure against shocks to revenues or expenditures. This term needs to be added to the bank balance target. A standard yardstick is one month of government expenditure.
- Finally, the *central bank's other freely available resources*—the SDR allocation and its capital—are subtracted from the bank balance target.

8. Overall, this results in the following formula:

$$BB = 30\,\%\,of\ ST\ Public\ Debt + \ 10\,\%\,of\ Deposits + 1\ month\ of\ gov.spending - \\ -SDR\ allocation - CB\ capital$$

The equation puts Kosovo's required government bank balance at about 7 percent of GDP. Under the Stand-By Arrangement, this yardstick serves as a rough orientation point for bank balance adequacy.

Bank Balance Target
(2013, in percent of GDP)

Potential sources of liquidity needs	8.2
Government debt market	1.1
Bank deposits	4.5
Banks with ECB access	3.0
Banks w/o ECB access	1.5
Government expenditures	2.6
Minus: central bank own funds	1.2
Target	7.0

Source: IMF staff calculations

9. By far the largest component is the liquidity buffer against possible banking system strains. There are arguments, however, that this buffer may not need to be quite as ample. About two-thirds of the banking system's deposits are held by subsidiaries of banking groups located in the euro area. The parents of these banks have access to ECB facilities. In case of liquidity strains, the banks probably would and arguably should turn to their parents rather than the CBK. As a result, the CBK may not need to hold the same reserves buffer against deposits of ECB-based banks than against deposits of other banks. Factoring this in results in a range for bank balance adequacy of 4½ to 7 percent of GDP.[2]

[2] 4½ percent of GDP is also the minimum bank balance inscribed into Kosovo's rules-based fiscal framework.

C. Alternative Mechanisms for Funding Reserves

10. Kosovo's main funding mechanism for FX reserves—the maintenance of high government deposits with the CBK—is problematic in several ways. First, it is difficult politically, as the national assembly needs to approve the government's bank balance with every annual budget. 4½-7 percent of GDP in deposits are difficult to defend in the face of pressing social and infrastructure spending needs. Second, the arrangement renders the CBK's ability to inject liquidity dependent on the government's preparedness to hold deposits, and therefore limits the operational independence of the central bank. While some reserves should arguably always be provided by the government—notably the funds that insure against fiscal shocks—it would seem beneficial to collect reserves also from other sources.

11. There are alternatives. The 2012 IMF/World Bank mission under the Financial Sector Assessment Program (FSAP) proposed financing future increases in the central bank's special reserves fund (SRF) for emergency liquidity assistance (ELA) by collecting a contribution from banks.[3] These funds would—in contrast to the banks' mandatory and excess reserves—*not* have claims of *individual* banks set against them, and therefore satisfy the characteristics of FX reserves.[4] While the specifics of such a mechanism remain to be worked out, one option to enlarge the size of the SRF rapidly would be to convert a portion of mandatory bank reserves into pooled SRF funds.

12. Besides managing reserves, the CBK has—and could make greater use of—other options to manage liquidity conditions, in particular by varying banks' mandatory reserves in line with changes in the macroeconomic environment and systemic risks. This relates to another FSAP recommendation, i.e., to develop a macro-prudential policy framework.

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IMF (2011a): *Balance of Payments and International Investment Position Manual* (6th Edition)

IMF (2011b): *Assessing Reserves Adequacy*, IMF Policy Paper SM/11/31

[3] The SRF was set up and funded in 2012 through a government transfer of €46 million. The SRF counts toward the government's usable bank balance, although—in contrast to normal government deposits—its resources can be drawn down only with the consent of the CBK.

[4] Ecuador and Panama—both unilaterally dollarized economies—have similar arrangements in place.

BENCHMARKING FINANCIAL DEVELOPMENT[1]

In the latter half of the past decade, private credit-to-GDP grew rapidly. Similar to most other Western Balkan countries, Kosovo may have "overshot" its structural benchmark on credit deepening. In contrast, other dimensions of development, such as efficiency and access still tend to lag. The impact of rapid credit deepening on asset quality in Kosovo has not been as bad as in some of the other Western Balkan countries. Nonetheless, going forward, monitoring closely and assessing the driving factors of credit-to-GDP growth would be an important task of macroprudential policy.

A. Introduction

1. Over the last decade, Kosovo's banking system has been one of the fastest growing in the Western Balkans, although it still remains the least developed. Since the end of the war in 1999, the banking system has grown from four banks (half of which were new foreign banks) to nine banks (of which seven are foreign). Kosovo's growth prospects, in particular from a relatively young and fast growing population, have attracted foreign banks, first from the Euro Area and more recently from near-by countries, in particular Turkey. Assets of the banking sector as a share of GDP have increased more than six-fold over the last decade, whereas that of other Western Balkan countries have increased less than three-fold. On the other hand, non-bank financial institutions and in particular securities markets have not seen much growth and remain relatively small or non-existent.

2. This paper seeks to put Kosovo's banking sector development in perspective, in particular with respect to the country's structural characteristics and policy impacts. Given the dominant position of banks in the Kosovo financial system, this paper focuses on indicators of banking sector development. First, it compares Kosovo's banking sector growth and indicators of development to that of the other middle-income Western Balkan countries (i.e., Albania, Bosnia-Herzegovina, Macedonia FYR, Montenegro, and Serbia, referred to as the SEE5). Second, it looks at select banking development indicators controlling for the level of economic development and structural characteristics to provide a benchmark of Kosovo's progression. Lastly, it reviews how Kosovo's business enabling environment may have had an impact on banking sector development.

3. To track banking sector development, a few indicators of depth, access, efficiency, and soundness are used. While ideally financial development indicators would measure how well the financial sector functions (e.g., how well savings are allocated to productive projects), direct measures are lacking. Instead, the literature has focused on a set of indicators that measure dimensions of financial intermediation, such as size as measure of depth, reach as measure of

[1] Prepared by Pamela Madrid Angers.

Size of Financial Institutions and Markets in Kosovo, SEE5 and ECA
(Percent of GDP)

Year	Country/Region	Deposit money bank assets	Non-bank financial institutions assets	Insurance companies assets	Pension fund assets under management	Domestic private debt securities	Domestic public debt securities
2003 or earliest							
	Kosovo	5.3	1.5	1.4	0.0	0.0	0.0
	SEE5	20.6	N/A	4.1	N/A	N/A	N/A
	ECA	20.6	1.1	2.3	0.5	N/A	20.5
2010 or latest							
	Kosovo	32.3	1.2	1.9	0.0	0.0	0.0
	SEE5	57.7	N/A	3.9	1.6	N/A	N/A
	ECA	50.3	0.2	2.9	1.6	0.2	17.8

Sources: Central Bank of Kosovo; World Bank Global Financial Development Database; and IMF staff calculations.
SEE5 comprise Albania, Bosnia-Herzegovina, Macedonia, Montenegro, and Serbia.
ECA comprise middle-income countries in Europe and Central Asia.
N/A is not available.

access, efficiency, and soundness as a measure of stability (Appendix). For parsimony and data availability reasons, this paper focuses on a subset of the banking development indicators used in the literature: depth is measured by bank credit to the private sector and broad money deposits relative to GDP; reach or access is measured by the number of bank deposits accounts and share of firms with credit; efficiency is measured by the bank lending-deposit interest rate spread; and stability or soundness is measured by the ratio of non-performing loans (NPL) to total loans.

4. Further, to better evaluate Kosovo's banking sector development, indicators are benchmarked (i.e., structural characteristics are taken into account). This follows the methodology developed by the World Bank (Appendix) that benchmarks development indicators by controlling for economic-structural characteristics (e.g., income per capital, population characteristics, etc.). Cross-country differences arising from policies are thus partially captured in the residual. In benchmarking, what is relevant is not so much the level of the indicator, but the gap between the benchmark and actual level of the indicator. While Kosovo is currently not included in the Finstat database, its benchmark can be proxied by that of Albania, which has the most similar level of income per capita and population structural characteristics. [2]

[2] Adjusting for Kosovo's denser and younger population would indicate that it's expected quantiles should be somewhat lower than Albania's.

Select SEE and ECA Countries Level of Economic Development and Structural Characteristics

Region/Income grouping [1/]			Per capita GDP in constant 2000 US$ (2011)	Population size (2011, millions)	Pop. Density (2010) [2/]	Age Dependency, young (2011) [3/]	Age Dependency, old (2011) [3/]
SEE6	LMI	Albania	1,970	3.2	117	32	15
	UMI	BiH	2,230	3.8	74	21	20
	LMI	Kosovo	1,970	1.8	163	42	10
	UMI	Macedonia	2,280	2.1	82	24	17
	UMI	Montenegro	2,290	0.6	47	28	18
	UMI	Serbia	1,220	7.3	83	26	21
Other ECA-LMI (exc. Fuel exporters	LMI	Armenia	1,380	3.1	109	29	16
	LMI	Georgia	1,330	4.5	78	24	21
	LMI	Moldova	636	3.6	124	23	16
	LMI	Ukraine	1,090	45.7	79	20	22
	LMI	Uzbekistan	993	29.3	67	43	6
Other SEE	UMI	Bulgaria	2,620	7.5	69	20	26
	UMI	Romania	2,630	21.4	93	22	22
SEE-OECD/High-Income	HI	Croatia	6,270	4.4	79	22	26
	HI	Slovenia	12,700	2.1	102	20	24
SEE6 median (exc. Kosovo)			2,230	3.2	82	26	18
Other ECA-LMI median			1,090	4.5	79	24	16
Other SEE median			2,625	14.4	81	21	24
SEE-OECD/High-Income median			9,485	3.2	90	21	25

Source: World Bank Development Indicators.

[1/] SEE=South Eastern Europe; ECA=Europe and Central Asia (World Bank grouping); LMI=Lower Middle Income; UMI=Upper Middle Income; and HI=High Income.

[2/] People per sq. km of land area

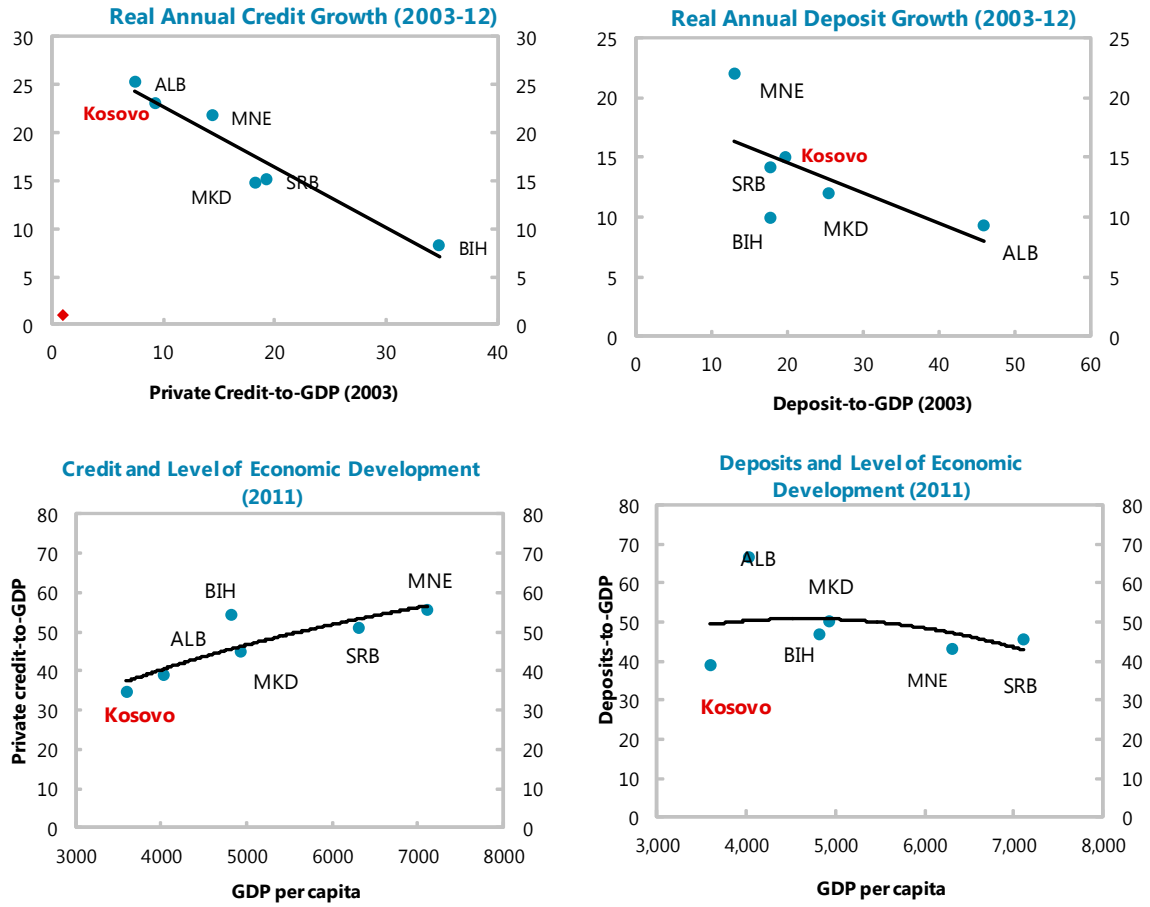
[3/] Percent of working-age population (i.e., 15-64 years). Young are under 15 and old are over 64.
For Kosovo data are for 2010.

B. Banking Sector Growth and Development

5. Kosovo's banking sector has grown quickly but is still the least developed in the Western Balkans, reflecting in large part its relatively lower level of economic development. Kosovo's fast growth rate of private credit and deposits over the last decade appears in line with its lower starting level of depth. Despite its fast growth, however, Kosovo's banking sector depth, in particular for private sector credit, is still lower than that of its neighbors. This positioning is largely expected, reflecting largely its lower level of economic development (i.e., GDP per capita).[3] Further,

[3] As noted in the Appendix, Kosovo's relatively younger population (below 15 years of age) also would tend to lower its level of depth relative to other Western Balkans, all else equal.

up until the global financial crisis of 2008-2009, the Western Balkan countries had experienced a credit boom, in several cases financed by foreign funding.[4] In contrast, Kosovo's banking sector, although dominated by foreign banks, is largely domestic deposit funded.



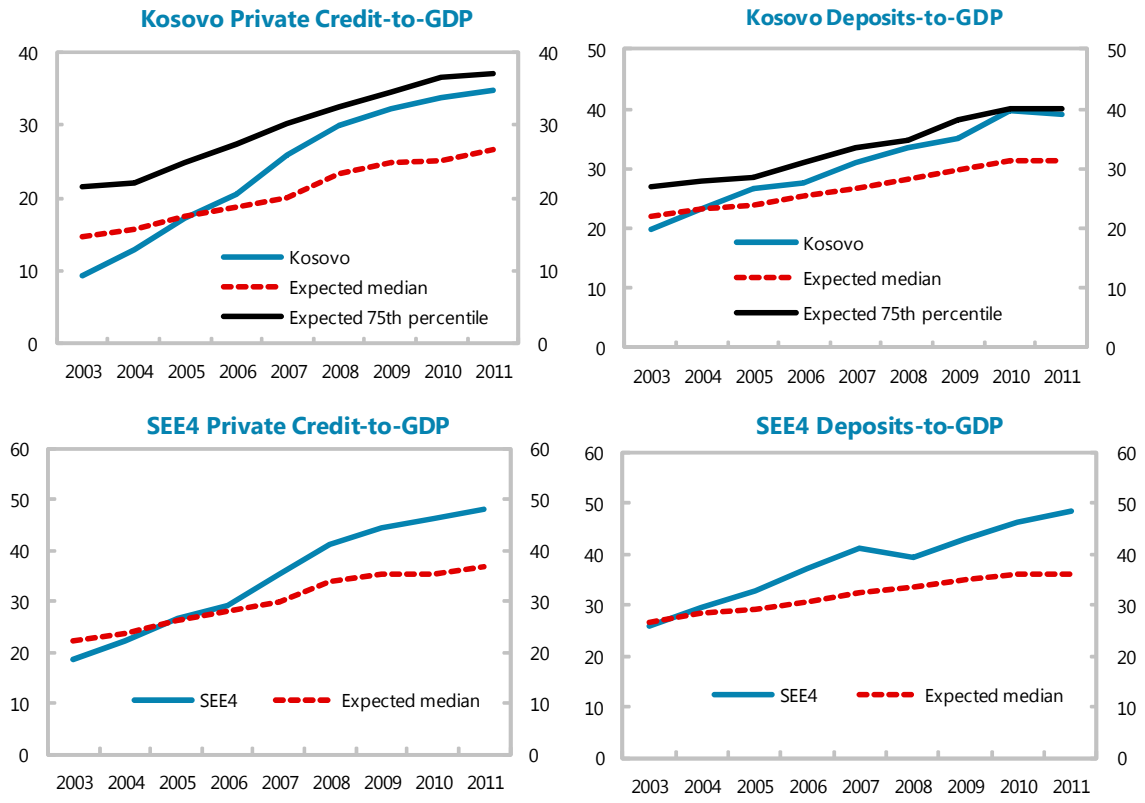
Sources: IMF International Financial Statistics (IFS) and staff calculations.

6. Nonetheless, Kosovo's financial depth now appears to be above its structural benchmark—as is the case with many of its neighbors—which may indicate some overshooting of credit growth. Whereas in 2003 Kosovo appeared to have been below its proxy benchmark (i.e., Albania's expected median) for private sector credit and deposit depth, by 2005 its banking depth appeared above where Kosovo's structural characteristics would indicate.[5] Indeed, by

[4] Foreign funding was particularly relevant for Montenegro and Bosnia-Herzegovina during the boom years of 2003-2008. See IMF (2013).

[5] As noted in the Appendix, the benchmark of the indicator is estimated from a quantile regression of a panel of countries, controlling for their GDP per capita, population characteristics, and dummies for other structural variables (e.g., if the country is a transition country, fuel exporter, or offshore financial center). It also includes time dummies.

2008 Kosovo's private sector credit-to-GDP ratio was close to its expected 75th percentile. This could be approaching the zone for an excessive credit boom (i.e., assuming this is not a result of a better enabling environment or more macro stability).[6] However, the private credit-to-GDP gap in Kosovo still is lower than gaps in most other neighboring SEE countries, suggesting that high credit depth is a regional characteristic.

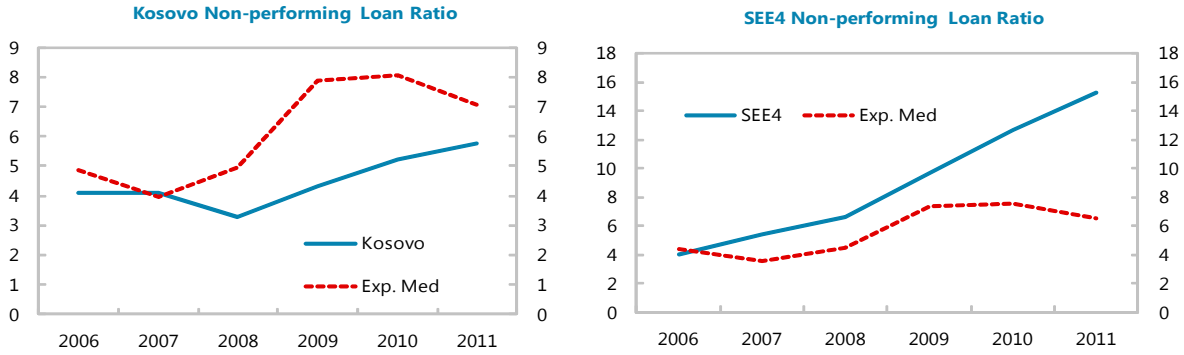


Sources: IMF IFS; World Bank Finstat; and IMF staff calculations.

7. While depth may have overshot, the NPL ratio—an indicator of banking stability—is still relatively low. Since 2006, the NPL ratio in Kosovo has been on an increasing trend, coinciding with the increasing credit depth gap. Nonetheless, NPLs in Kosovo have remained mostly below its benchmark for NPLs, which suggests that banks in Kosovo may have been relatively more cautious and that credit quality compares favorably to that in other comparable countries with similar structural characteristics. Furthermore, the gap between the actual NPL ratio and the NPL benchmark, while narrowing in recent years, still compares very favorably with the situation in the

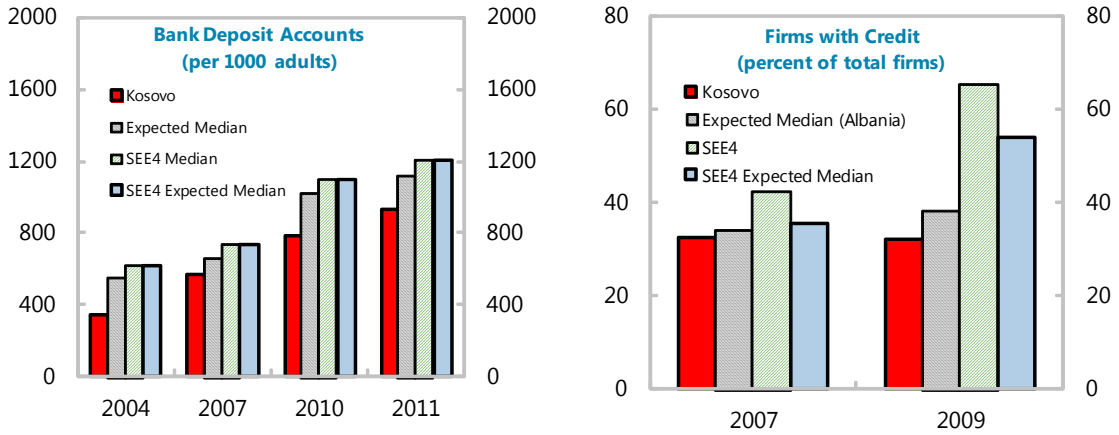
[6] Barajas et al. (2013) find that the probability of a banking crisis surpasses 10 percent when a country exceeds its benchmark by 50 percent.

other SEE countries, which have consistently been above their threshold, in particular following the global financial crisis of 2008.



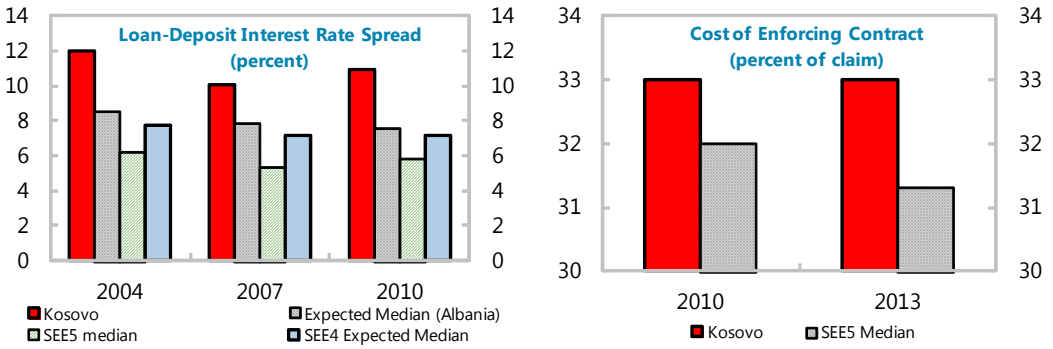
Sources: Central Bank of Kosovo; World Bank Finstat Database; and IMF staff calculations.

8. In terms of reach, in particular access to credit by a broader segment of firms, Kosovo needs to make further progress. Reach, as measured by the number of bank accounts has been improving, closing the gap with the structural benchmark. However, reach as measured by percent of firms with credit access has not improved since 2007, when it was close to its benchmark. Indeed the gap has since widened.



Sources: IMF Financial Access Survey (FAS); World Bank Finstat; and IMF staff calculations.

9. Kosovo's banking efficiency, as measured by the interest rate spread, is also below its statistical benchmark (i.e., the spread is higher than expected). This may reflect the lack of sufficient progress on creditor rights as well as financial structure characteristics (e.g., bank concentration or extent of competition). There is some limited evidence with regard to the former factor from the World Bank Doing Business indicator on the cost of enforcing a claim that Kosovo's that has remained elevated, while it has been mostly declining in the SEE5 (see below).



Sources: IMF IFS; World Bank Doing Business Surveys and Finstat; and staff calculations.

10. Kosovo has made some progress on credit information, but the enabling environment for credit enforcement remains quite weak. Data for Kosovo is very limited—in particular Doing Business (DB) indicators on the ease of getting credit, enforcing contracts, and resolving insolvency for Kosovo are only available from 2009 (i.e., DB2010 survey). Nonetheless, Kosovo has made some improvements in the enabling environment for banking. In particular the coverage of the CBK credit registry has improved,[7] and Kosovo has a similar ranking to that of the SEE5 median and a higher ranking than the ECA median.[8] However, Kosovo still lags most SEE5 and ECA countries in terms of enforcing contracts and resolving insolvencies, both of which would tend to reduce credit expansion (as they add to interest rate spreads and thus the quantity of credit demanded). This would tend to be consistent with Kosovo not being able to expanding credit as much as the SEE5.

11. Going forward, the envisaged development of a macroprudential policy framework that includes monitoring closely and assessing credit-to-GDP growth would be an important task. The authorities are working on improving the enabling environment, which should allow for further reach and efficiency of the Kosovo banking sector. However, sustainable financial development also requires financial stability. In this regard, monitoring the evolution of the credit-to-GDP ratio would be important task. The Central Bank of Kosovo is currently developing a macroprudential framework, in line with one of the key recommendations of the 2012 Financial Sector Stability Assessment (FSSA).

[7] Kosovo's public credit registry has information on borrowers going back to 2003. Its information content was recently expanded. Banks cite it as a very useful tool to mitigate credit risk.

[8] This is consistent with recent research on the structure and dynamics of financial development that finds that informational frictions are easier to overcome than contractual frictions (see de la Torre et al., 2011).

Indicators of the Business Environment														
	Getting Credit					Enforcing Contracts				Resolving Insolvency				
	Rank	Strength of legal rights index (0-10)	Depth of credit information index (0-6)	Public registry coverage (% of adults)	Private bureau coverage (% of adults)	Rank	Time (days)	Cost (% of claim)	Procedures (number)	Rank	Time (years)	Cost (% of estate)	Outcome (0 as piecemeal sale and 1 as going concern)	Recovery rate (cents on the dollar)
Kosovo														
DB2005	..	…	…	…	…		…	…	…	..	…	…	…	…
DB2010	..	8	5	18.9	0.0	..	420	33.0	53	..	2.0	15.0	..	34.0
DB2012	23	8	5	20.5	0.0	139	420	33.0	53	86	2.0	15.0	..	34.4
DB2013	23	8	5	22.2	0.0	138	420	33.0	53	87	2.0	15.0	0	34.7
SEE5 median														
DB2005	..	7	2	0.05	0.0		552	33.3	39	..	2.4	10.0	..	35.0
DB2010	..	7	4	23.2	0.0	..	545	32.0	37	..	2.0	10.0	..	38.7
DB2012	23	7	5	26.4	39.6	102	545	31.3	37	65	2.0	10.0	..	40.2
DB2013	23	7	5	25.2	4.8	103	545	31.3	37	66	2.0	10.0	0	39.6
ECA (exc. SEE6) median														
DB2005	..	4	1	NA	NA	..	565	29.7	39	..	3.0	15.0	..	22.3
DB2010	..	6	5	1.3	6.1	..	327	23.3	37	..	3.0	10.5	..	30.3
DB2012	97	6	3	NA	NA	108	561	29.0	39	111	3.0	15.0	0	28.3
DB2013	104	6	4	NA	NA	107	565	29.0	39	112	3.0	15.0	0	28.4

Source: World Bank Doing Business Surveys.

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APPENDIX. MEASURING AND BENCHMARKING FINANCIAL DEVELOPMENT

Measuring Financial Development

Financial development occurs when agents mitigate the effects of imperfect information, limited enforcement, and transactions costs through the use of financial instruments, intermediaries, or markets in order to efficiently allocate financial resources and diversify risks.[1] Financial development indicators would aim to measure such financial functioning. However, direct measures are mostly lacking. Thus the literature typically uses intermediate indicators of dimensions of financial intermediation such as of the size, efficiency, reach, and soundness of financial institutions and markets. Specifically, for banks the following indicators are often used:

Dimension	Variable (log of):	Empirical link with growth	Goodness of fit	Factor loading	Coverage	Within to between variation
Size	Private credit by deposit money banks to GDP	Direct	High	High	Excellent	High
	Bank deposits to GDP	Direct	High	High	Excellent	High
	Bank domestic assets to GDP	Indirect	High	High	Good	High
Efficiency	Net interest margin	Indirect	Medium	High	Good	High
	Lending minus deposit rate	Indirect	Medium	Medium	Good	Low
	Overhead costs to total assets	Indirect	Low	High	Good	High
Reach	Deposits per 1,000 people	Indirect	High	High	Low	NA
	ATMs per 1,000 people	Indirect	High	Medium	Low	NA
	Branches per 100,000 people	Indirect	High	Low	Low	NA

Source: Beck et al. (2008)

[1] See M. Čihák, A. Demirgüç-Kunt, E. Feyen, and R. Levine, "Benchmarking Financial Systems around the World", World Bank Policy Research Working Paper 6175, 2012, for a fuller discussion.

Work by the World Bank has evaluated the above list based on specific selection criteria: (i) empirical evidence of direct link with final welfare (e.g., indicators that perform best in predicting economic growth, such as private credit-to-GDP); (ii) goodness of fit (i.e., R2) in structural regression estimates; (iii) factor loading along the principal component that measures the specific dimension of intermediation; (iv) broadest coverage of countries and over time; and (v) stability (i.e., the ratio of within sample variance to between sample variance).

Although not included in the study above, financial benchmarking studies (discussed below) also include measures of stability or soundness as this is an important dimension of sustainable financial development. Measures of banking sector soundness include indicators on capital adequacy, liquidity, and non-performing loans. Recent work has also included the z-score (a proxy for the distance to default).

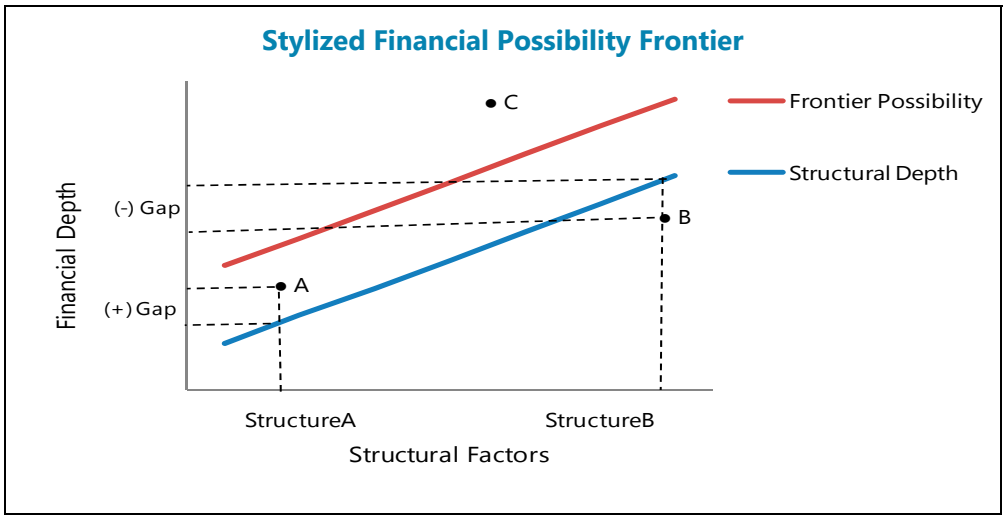
Benchmarking Financial Development

When comparing levels of financial development across countries, it is useful to take into account the level of economic development and structural characteristics that impact development regardless of the financial sector policies employed by a country. In particular, structural characteristics such as population size, density and age composition along with income per capita and whether the country is a transition economy, fuel exporter, or offshore financial center have been found to statistically impact the indicators of financial development.[2]

Controlling for these structural, or policy-invariant, variables in a regression provides a country's structural "benchmark", i.e., the expected average (if using least-squares regressions) or median (or other percentile if using quantile regressions). Thus, it may be possible to say if a country is over-performing even though it has a lower absolute level of an indicator (e.g., point A in the figure below), or underperforming even if it has a higher absolute level (e.g., point B).

As long as the impact of financial policies on economic development is lagged, policy should at least be partially embedded in the residual. The residual (or gap) between actual performance and a country's expected average or median can therefore indicate whether a country is performing below its potential—perhaps due to weaknesses in its enabling environment, e.g., due to weak information and legal infrastructure— or above, perhaps due to financial innovation, which if combined with weaknesses in the regulatory and governance frameworks, however, can lead to overshooting or a boom-bust episode (e.g., point C in the figure below).

[2] Beck, Feyen, Ize, and Moizezowicz, "Benchmarking Financial Development", World Bank Policy Research Working Paper 4638 (2008). Maximizing model fit was used as a criterion to select the final set of controls from the large set of potential controlling factors.



Source: Barajas et al. (2013)

With regard to depth indicators, regression results show a positive relationship between income per capita (which tends to level off at higher income levels) as well as size of the market (i.e., population size). In contrast, age dependency (i.e., in particular relatively more young people that are below 15) and being a transition economy tend to reduce depth. Population density tends to increase deposit depth but reduce credit depth.

Benchmarked financial development indicators are available from the World Bank's Finstat database, which covers 183 countries and estimates benchmarks based on data from 2002-2011. The panel regression includes year-fixed effects, but not country fixed-effects (i.e., a global shock can lift or lower all countries, and a common path of development is assumed).