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Abstract: The aim of this paper is to evaluate the importance of the issue of the loss of an independent monetary policy in the case of officially euroized Montenegro. We examine the extent to which the monetary policy of the European Central Bank, which is set according to the economic conditions prevailing in the euro area, has contributed to the stabilisation of the business cycle of unilaterally euroized Montenegro. It is shown that under euroization the ECB monetary policy has been acyclical with respect to Montenegrin inflation and significantly countercyclical with respect to Montenegrin output growth. The comparative analysis with Serbia does not show that keeping an independent monetary policy would have improved the cyclical stabilisation in Montenegro. The pass-through from ECB policy rates to retail interest rates prevailing at commercial banks in Montenegro is shown to depend significantly on the macroeconomic and banking conditions prevailing in Montenegro.

JEL classification numbers: E42, E43, E52, E65

1 Introduction

Full or official dollarization (euroisation) is the abandonment by a country of its own domestic currency and the adoption of a foreign currency as legal tender and official currency. Although the dollarization phenomenon is not a new one, the experience of countries and territories that have officially and unilaterally adopted a foreign currency remains under-researched (see the survey of Mazzafero et al, 2004 for example). While unofficial dollarization has been the focus of a vast literature exploring its policy implications, official dollarization/euroisation has mainly been investigated on theoretical grounds. Empirical literature on official dollarization is rather scarce as this regime concerns a small number of countries with a short history of dollarization, on one hand, and there is a difficulty to collect relevant data, on the other hand. Among the empirical investigations Edwards (2001) on Panama, Edwards and Magendzo (2006) on a cross-country study, Arellano and Heathcote (2007) on Ecuador and El Salvador, Fabris and Kalezic (2008) on Montenegro, and Swiston (2011) on El Salvador can be pointed out.

The benefits and costs of full scale dollarization have been extensively discussed in the literature on the theoretical grounds (see Berg and Borenzstein 2000, Bourguinat and Dohni 2002, Backe and Wojcik 2002, Rochon and Rossi 2003, Mazzafero et al 2004, Schuler 2005, or Minda 2005 for example). As stressed by Mazzafero et al (2004) transaction cost savings and the loss of seigniorage revenues are relevant issues of the balance of costs and benefits but they are not the key issue. The key issue of the dollarization/euroisation debate is the loss of the monetary policy instrument as an adjustment mechanism following asymmetric shocks and fluctuations in the business cycle not in line with those in the anchor country. If the business cycles of the anchor country and the dollarized economy are relatively synchronized, then the monetary policy of the anchor country, which is set according to the business cycle

and inflation expectations of the anchor country, should correspond to the dollarized country too. In that respect the loss of the monetary policy sovereignty would not be an issue.

Montenegro adopted a full scale unilateral and official euroisation in 2001 using the Deutsche Mark in the first step and the euro thereafter. Therefore, Montenegro gave up an independent monetary policy and exposed its economy to the loss of an adjustment mechanism in face of possible asymmetric shocks and different fluctuations in the business cycle with respect to the euro area. The aim of this paper is to evaluate the importance of the issue of the loss of an independent monetary policy in the case of fully and officially euroized Montenegro. We examine the extent to which the monetary policy of the European Central Bank, which is set according to the economic conditions prevailing in the euro area, has contributed to the stabilisation of the business cycle of unilaterally euroized Montenegro. A variety of statistical and econometric methods is applied in that purpose. The paper contributes to the relatively scarce literature on empirical studies of officially dollarized economies by investigating on an empirical basis the issue of the loss of an independent monetary policy in Montenegro. The empirical analysis adopts two relevant benchmarks for Montenegro, which are the euro area on one hand, and the "old" Yugoslav partner Serbia, which has kept an independent monetary policy, on the other hand.

Section 2 investigates the stabilization properties of the European Central Bank (ECB) monetary policy over the Montenegrin business cycle using a Taylor rule type methodology and compares with the euro area and Serbia. To complete the analysis of the cyclical stabilization section 3 examines the transmission of ECB monetary policy rates to retail interest rates prevailing at Montenegrin commercial banks. Section 4 investigates the factors affecting the degree of the pass-through of monetary policy rates to retail interest rates and provides relevant explanation with policy implications. Section 5 concludes.

2 Euroization and cyclical stabilization

In this section we examine the extent to which the monetary policy of the European Central Bank for the euro area, which is set according to the economic conditions prevailing in the euro area, has contributed to the stabilisation of the business cycle of unilaterally euroized Montenegro. Closer synchronisation of Montenegrin economy with that of the euro area should lower the costs of the loss of independent monetary policy under euroisation. The synchronization of the business cycle of Montenegro with that of the euro area can be estimated by the correlations of quarter-on-quarter output growth and inflation. Table 1 shows the results of these calculations for euroized Montenegro on the period between 2002 and 2011 on a quarterly basis.

Table 1. Quarter-on-quarter correlations between Montenegro and the euro area business cycles

output growth	inflation
0,321 **	0,206

Source: Authors calculations, Central Bank of Montenegro, Eurostat, ** represent statistical significance at the 5% level of confidence

From table 1 it turns out that there is some synchronisation of business cycles of Montenegro and the euro area as there is a significant positive correlation of output growth between them.

However, it appears that the inflation correlation is not significant. Recent research indicates that higher trade and financial integration foster business cycle correlation between economies with different economic structures (Imbs 2003). So far trade flows of Montenegro have mainly concerned the neighbouring former Yugoslav republics of Serbia, Bosnia, Croatia and Macedonia. According to empirical findings of Rose (2000) and Frankel and Rose (2002) the use of the single currency should enhance the development of trade integration of Montenegro with the euro area. In line with these arguments higher correlations could follow in the future.

Given the correlation of the Montenegrin economy with that of the euro area the contribution of the ECB monetary policy to output and inflation stabilisation over the business cycle in Montenegro can be examined by a standard Taylor rule analysis. Following Swiston (2011) we use a Taylor rule analysis may assess the extent to which the adjustment of ECB interest rate policy instrument corresponds to developments in inflation and output growth in Montenegro. Following Taylor (1993), the general Taylor rule suggests that the central bank should adjust the interest rate instrument *i* according to deviations of the inflation rate π and the output growth *y* from their equilibrium settings π^* and y^*, respectively. This kind of rule may be represented by the following expression:

$$i_t = i^* + a_\pi(\pi_t - \pi^*) + a_y(y_t - y^*), \quad (1)$$

where i^* is the equilibrium value of the interest rate, a_π and a_y the coefficients measuring the reaction of the monetary policy setting to inflation and outgut growth, respectively. A large literature has discussed and estimated similar or alternative Taylor rules for a variety of countries and time periods (see Orphanides 2003 and 2007 for a survey). For estimation purposes we include a non-zero constant and add the lagged value of interest rate:

$$i_t = \alpha + \rho i_{t-1} + a_\pi \pi_t + a_y y_t + \varepsilon_t. \quad (2)$$

Equation (2) is the policy rule to be tested to account for the contribution of the issuing country monetary policy to the business cycle. In the latter expression the coefficients a_π and a_y measure the short-run responses of the interest rate policy instrument to variations of inflation and output growth, respectively. The long-run responses of monetary policy are given by $\frac{a_\pi}{1-\rho}$ with respect to variation of inflation and $\frac{a_y}{1-\rho}$ with respect to variation of output growth.

Using contemporaneous quarterly data on the time period from 2002 to 2011 equation (2) was estimated for the EONIA rate vis-à-vis inflation and output growth rates in Montenegro under euroisation. Table 2 shows the short-run coefficients of the ECB monetary policy response with respect to the business cycle in Montenegro.

Table 2. Short-run monetary policy reaction to inflation and output growth
(short-run change in monetary policy rate associated with one percentage point increase in inflation and output growth)

	Lagged policy rate	Inflation	Real GDP growth
Taylor Rule, Euroization	0,797 (***)	0,031	0,310 (***)

Source: Authors calculations, Central Bank of Montenegro, Eurostat, *** represent statistical significance at the 1% level of confidence

From table 2 it turns out that the coefficient of the lagged value of the interest rate is large and highly significant. This result is in line with the literature. As indicated by Walsh (2010) when the Taylor rule is supplemented by the lagged policy rate the latter enters with a statistically significant and large coefficient. This is generally interpreted as reflecting the inertial behaviour of monetary policy.

Table 2 shows that the ECB monetary policy has been acyclical with respect to Montenegrin inflation and countercyclical with respect to Montenegrin output growth. The short-run response of monetary policy to inflation variation is positive but not significant. This is consistent with the insignificant correlation of inflation between the euro area and Montenegro found in table 1. The short-run response of monetary policy to output growth is significantly positive. The long-run responses of monetary policy with respect to inflation and output growth variations are shown in Table 3.

Table 3. Long-run monetary policy reaction to inflation and output growth
(long-run change in monetary policy rate associated with one percentage point increase in inflation and output growth)

	Inflation	Real GDP growth
Taylor Rule, Euroization	0,153	1,527 (***)

Source: Authors calculations, Central Bank of Montenegro, Eurostat, *** represent statistical significance at the 1% level of confidence

Taking into account the forward looking property of monetary policy equation (2) was re-estimated with the hypothesis of perfect foresights. We estimated equation (2) with three different assumptions concerning the time horizon of the business cycle forecasts: using one, two, three, and four quarters ahead actual values of inflation and output growth. The results of the short-run coefficients are reported in Table 4.

Table 4. Short-run monetary policy reaction to inflation and output growth with a forward looking monetary policy perspective

	Lagged policy rate	Inflation	Real GDP growth
Four quarters ahead data	0,963 (***)	0,088	0,074
Three quarters ahead data	0,967 (***)	0,058	0,2 (***)
Two quarters ahead data	0,923 (***)	0,021	0,251 (***)
Using first lead of inflation and real GDP growth	0,867 (***)	-0,006	0,325 (***)

Source: Authors calculations, Central Bank of Montenegro, Eurostat, *** represent statistical significance at the 1% level of confidence

The coefficients of the lagged policy rate are significant and of higher value with ahead data than with contemporaneous data. In all cases the coefficients of inflation are insignificant. However, except with the hypothesis of four quarters ahead data the coefficients of output growth are significant and between 0.2 and 0.325.

The long-run coefficients are given in Table 5. It turns out that the perspective of a forward looking monetary policy setting increases the long-run response of monetary policy to output growth variation. This result suggests that the ECB monetary policy is deemed to be more countercyclical with respect to output growth with ahead data rather than with contemporaneous data.

Table 5. Long-run monetary policy reaction to inflation and output growth with a forward looking monetary policy perspective

	Inflation	Real GDP growth
four quarters ahead data	2,378	2
three quarters ahead data	1,758	6,061 (***)
two quarters ahead data	0,273	3,260 (***)
one quarter ahead data	-0,045	2,444 (***)

Source: Authors calculations, Central Bank of Montenegro, Eurostat, *** represent statistical significance at the 1% level of confidence

It would have been very interesting if we could have performed a comparison between the situation before euroisation and after euroisation in Montenegro. However, this kind of investigation is not possible because of the specific situation of Montenegro where euroisation has been implemented after severe political and economic turmoil in the context of the breakup of Yugoslavia in the late nineties. Nevertheless, the experience of Serbia, with which Montenegro shared the same state until its independence in 2006, could shed light on whether an independent monetary policy would significantly outperform official euroisation in stabilising Montenegrin inflation or output growth. Serbia operates under a regime of managed floating and has been exercising an independent monetary policy.

Using contemporaneous quarterly data on the time period from second quarter of 2001 to last quarter of 2011 equation (2) was estimated for the National Bank of Serbia (NBS) monetary policy open market interest rate vis-à-vis inflation and output growth rates in Serbia. Table 6 shows the short and long-run coefficients of the NBS monetary policy response with respect to the business cycle in Serbia.

Table 6. Short and long-run NBS monetary policy reaction to inflation and output growth in Serbia (change in monetary policy rate associated with one percentage point increase in inflation and output growth)

	Lagged policy rate	Inflation	Real GDP growth
Short-run responses	0,864 (***)	0,543 (***)	-0,207
Long-run responses	-	3,99 (***)	-1,52

Source: Authors calculations, National Bank of Serbia, *** represent statistical significance at the 1% level of confidence

From table 6 it turns out that the NBS monetary policy has been procyclical with respect to Serbian output growth. However, the short-run corresponding coefficient has proved to be insignificant. On the other hand, the results show that the NBS monetary policy has been strongly countercyclical with respect to Serbian inflation, thereby respecting the Taylor principle. This finding is not surprising with regard to the last twenty years monetary history of Serbia where two major hyperinflations took place during the nineties. One of these

hyperinflations has been the third most severe hyperinflation in the world monetary history (Sokic, 2012). The NBS had the difficult task to build a credibility in the fighting of inflation and, thus, to react strongly to inflation variation. Furthermore, the managed floating regime accounts for the other part of the strong monetary policy reaction to inflation variation.

The contributions of the ECB and the NBS to the stabilisation of the business cycles of Montenegro and Serbia, respectively, are quite different. On one hand the ECB issuing monetary policy has countercyclical properties with respect to Montenegrin economic activity but acyclical with respect to its inflation variation. On the other hand, the NBS monetary policy, that is the independent monetary policy of the "old" Yugoslav partner, has been strongly countercyclical with respect to Serbian inflation variation and procyclical (but not significantly) with respect to output growth variation. This comparative analysis has not shown that keeping an independent monetary policy would have improved the cyclical stabilisation in Montenegro.

3 Euroization and monetary policy transmission

Section 2 established that the ECB monetary policy may have been countercyclical with respect to the Montenegrin business cycle under official euroisation. However, these countercyclical properties of ECB monetary policy would be effective in the Montenegrin economy only to the extent of the transmission of the ECB policy interest rates to the retail rates in euroized Montenegro. This section investigates the pass-through of ECB policy rates to retail lending and deposit interest rates in the Montenegrin economy.

Following Swiston (2011) we use an autoregressive distributed lag (ADL) specification to account for the pass-through. The standard ADL specification with one lag can be written as

$$rr_t = a_0 + a_1 rr_{t-1} + a_2 mpr_t + a_3 mpr_{t-1} + \varepsilon_t , \tag{3}$$

where *rr* represents the retail interest rate (lending or deposit) and *mpr* the monetary policy rate. As non stationarity is a widespread situation among interest rates time series, all the available time series for interest rates were tested for unit roots. If unit roots were found for both retail rates and monetary policy rates then possible co-integration of the time series was investigated. In case of acceptance of a cointegration a Error Correction Model (Engle and Granger, 1987) approach has been adopted leading to the following specification:

$$\Delta rr_t = \beta_1 \Delta mpr_t + \beta_2 \left(rr_{t-1} - \alpha_0 - \alpha_1 mpr_{t-1} \right) + \mu_t , \tag{4}$$

where the coefficient β_1 represents the short-run impact and the coefficient α_1 the long-run impact of monetary policy rates to retail rates. A significant negative coefficient β_2, measuring the speed of adjustment from the short-run to the long-run impact, is required to validate the ECM specification.

For the cases where unit roots or cointegration were not found, the specification given by (3) was written in differences

$$\Delta rr_t = b_0 + b_1 \Delta mpr_{t-1} + b_2 \Delta mpr_{t-1} + b_3 \Delta rr_{t-1} + \eta_t . \tag{5}$$

In the latter specification the long-run pass-through from monetary policy rates to retail interest rates is represented by $(b_1 + b_2)/(1 - b_3)$.

Empirical investigation of pass-through in Montenegro was carried out using monthly data on the time period from September 2005 to December 2011 for both the ECB monetary policy rates given by EONIA and the different lending or deposit retail interest rates prevailing in the commercial banks in Montenegro. Table 7 reports the estimated long-run pass-through under euroisation in Montenegro.

Table 7. Pass-through of EONIA to retail interest rates in Montenegro

	Loans (up to 1 year)	Deposits (up to 1 year)
Long-run pass-through	-0,475 (***)	0,03

Source: Authors calculations, Central Bank of Montenegro, Eurostat, *** represent statistical significance at the 1% level of confidence

Pass-through under euroisation is not statistically significant for retail deposit interest rates (up to one year) in Montenegro. However, it is significantly negative in the case of retail lending interest rates. The average long-run impact of a hundred basis points change in EONIA has typically resulted in a reduction of roughly fifty basis points in the retail lending interest rates prevailing at commercial banks in Montenegro.

As a matter of benchmarks we firstly performed the investigation on the pass-through for the euro area. Regarding the pass-through investigation for the euro area we used monthly data from 2003 to 2011. The retail interest rates concern the lending rates to households and non-financial corporations as bank overdraft. Results for the pass-through of ECB monetary policy to euro area retail lending and deposit interest rates are reported in Table 8.

Table 8. Pass-through of EONIA to retail lending rates in the euro area

	Loans to households (bank overdraft)	Loans to non-financial corporations (bank overdraft)
Long-run pass-through	0,315 (***)	0,68 (***)

Source: Authors calculations, Eurostat, *** represent statistical significance at the 1% level of confidence

The pass-through is significantly positive for both the retail lending interest to households and non-financial corporations. It is especially high in the case of the retail lending interest rates to non-financial corporations. The average long-run impact of a hundred basis points change in EONIA has typically resulted in an increase of roughly 32 basis points in the retail lending interest rates to households and 68 basis points in the retail lending interest rates to firms at the commercial banks in the euro area.

To complete the comparison the investigation was conducted on the pass-through prevailing in Serbia. We carried out the investigation of the pass-through from NBS monetary policy rates to the short term lending interest prevailing at commercial banks in Serbia using

monthly data on the time period 2005-2011. The pass-through is significantly positive at 0.63. Therefore, in the case of Serbia, the long-run impact of a hundred basis points change in the NBS policy rates has typically resulted in a movement of 63 basis points in the retail short term lending rates prevailing at commercial banks.

These results show that there is a substantive difference in the monetary policy transmission prevailing in Montenegro compared with both the euro area and Serbia. The finding of the significant negative pass-through from ECB policy rates to retail interest rates prevailing at commercial banks in Montenegro requires further investigation.

4 Accounting for the monetary policy pass-through in Montenegro

Accounting for the significantly negative pass-through of ECB monetary policy rates to retail lending interest rates prevailing at commercial banks in Montenegro requires investigating the differences in interest rates prevailing at commercial banks between Montenegro and the euro area. Findings of last section suggest that the dynamics of retail interest rates at commercial banks in Montenegro are very different from those of retail rates at commercial banks in the euro area. Therefore, this section aims at identifying the main factors that could explain the gaps between commercial bank interest rates in the euro area and Montenegro. Following Swiston (2011) we focus on the explanation of these variations to account for the pass-through of ECB monetary policy rates to Montenegrin commercial bank retail rates.

One of the most important positive impact of official dollarisation is the convergence of the dollarising country interest rates with the anchor country rates. A number of authors discussed this issue. Calvo (1992) came to a conclusion that official dollarization will not automatically provide for the levelling of domestic prices and interest with the global ones because the credibility issue will not automatically disappear due to country risk, client risk, and the like. Mann (1999) thinks that dollarization does not necessarily lead to interest rate reduction because the risk premium will remain present depending on fiscal deficit, sophistication of the financial system, and flexibility of both the commodity and labour markets. The effect of the economy's stage of development and the legal system's efficiency could also be added to these arguments. However, it is reasonable to expect that dollarization will gradually reduce interest rates, but it is highly unlikely that it will automatically reach level of the anchor country interest rates. Goldfajn and Olivares (2000) think that interest rate decline in dollarized economies could be a result of the financial system liberalization rather than dollarization itself. In any case, these two effects are very difficult to separate one from another.

So we can conclude, since there is no exchange risk under dollarization, that the difference between the interest rates in the dollarised economy and the anchor country can be explained by a risk premium reflecting specific factors of the dollarised economy. As pointed out by Swiston (2011) the degree of pass-through may result from several factors including macroeconomic situation, fiscal sustainability, and features of the banking system. As Swiston (2011) we investigate the explanation of the variations in the gaps between commercial bank retail interest rates in Montenegro and the euro area using the following equation:

$$\Delta\left(i_t^{CG} - i_t^{EA}\right) = c_0 + c_1\left(i_{t-1}^{CG} - i_{t-1}^{EA}\right) + \Psi F_t + \zeta_t, \qquad (6)$$

where i_t^{CG} represents the retail rate in Montenegro and i_t^{EA} the retail rate in the euro area. The lagged level of the retail interest gap allows for the reversion of the interest gap to an equilibrium level over time. The vector F includes variables representing macroeconomic conditions, global risk aversion, and specific features of the Montenegrin banking system such as the solvability, the liquidity and the credit quality of borrowers. More precisely, Montenegrin GDP growth is used as a proxy for macroeconomic conditions. The VIX volatility index is used as the common measure of the risk aversion prevailing in global financial markets. Specific features of the Montenegrin banking system include the relative variation of the capital-asset ratio as a proxy for the solvability of the banking system, the relative variation of the liquid-asset ratio as a proxy for the liquidity of the banking system, and the relative variation of the ratio of Non Performing Loans (NPL) to total loans as a proxy of the credit quality of borrowers.

We estimated equation (6) using quarterly data on the time period 2005-2011. Table 9 shows the estimation results for equation (6). Many of the results are in line with economic intuition. The GDP growth rate was a highly significant factor affecting negatively the gap between interest rates in Montenegro and the euro area. An increase in the growth rate of the Montenegrin economy by 1% would reduce the gap by 47 basis points. The improvement of the solvability of the banking system may reduce very significantly the interest rate gap. An increase of one percentage point in the ratio of banks capital to assets on their balance sheets would reduce Montenegrin lending rates by more than 300 basis points. This result suggests that when banks improve their solvability by holding more capital with respect to the size of their balance sheets they ease lending terms. The deterioration of the credit quality of borrowers is about to raise significantly the gap. An increase of one percentage point in the ratio of non-performing loans to total loans would raise the gap on Montenegrin lending rates by almost 200 basis points. This finding suggests that a decline in the credit quality of their assets causes banks to raise the lending rates to new borrowers.

Table 9. Factors affecting the Montenegro-Euro area interest rate gap

Variable	Coefficient	Significance
GDP real growth rate	-0,472	***
VIX volatility index (relative variation)	-0,078	
Capital-asset ratio (relative variation)	-3,07	**
Liquid asset ratio (relative variation)	-0,413	
NPL-total loans ratio (relative variation)	1,984	*
Lagged interest rates gap	-0,086	
Adjusted R-squared	0,61	
Durbin-Watson stat	1,72	

Source: Authors calculations, Central Bank of Montenegro, Eurostat, ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels of confidence

Liquidity holdings of commercial banks were not found to significantly affect the variations of the gap between interest rates in Montenegro and the euro area, although it had the intuitive negative sign. The relative variation of VIX volatility index and the lagged level of the gap were not found to significantly affect the gap.

From this investigation it turns out that the variations in the interest gap between retail interest rates in Montenegro and the euro area depend significantly on the macroeconomic and banking conditions prevailing in Montenegro. The results suggest that improving the

solvability conditions of the commercial banks and performing sound risk management in the banking system are crucial factors in reducing the interest gap between Montenegro and the euro area.

5 Conclusion

Under euroization the ECB monetary policy has been acyclical with respect to Montenegrin inflation and countercyclical with respect to Montenegrin output growth. It would have been very interesting if we could have performed a comparison between the situation before euroisation and after euroisation in Montenegro. However, this kind of investigation was not possible because of the specific situation of Montenegro where euroisation has been implemented after extreme political and economic turmoil in the context of the breakup of Yugoslavia in the late nineties. Nevertheless, the comparison with the experience of Serbia, with which Montenegro shared the same state until its independence in 2006, showed that the contributions of the ECB and the NBS to the stabilisation of the business cycles of Montenegro and Serbia, respectively, were very different. The NBS monetary policy has been strongly countercyclical with respect to Serbian inflation reflecting the difficult task of building monetary credibility in a managed floating regime. Therefore, the comparative analysis with Serbia has not shown that keeping an independent monetary policy would have improved the cyclical stabilisation in Montenegro.

Pass-through of ECB monetary policy rates to retail interest rates in Montenegro has shown to be significantly negative. As a matter of comparison this pass-through has been shown to be significantly positive in the relevant benchmark cases for Montenegro that are the euro area and Serbia. The finding of the significant negative pass-through from ECB policy rates to retail interest rates prevailing at commercial banks in Montenegro has motivated a further investigation of the relevant factors affecting the pass-through. This investigation has been carried out on the factors that may explain the variations in the gap between retail interest rates prevailing at commercial banks in Montenegro and the euro area. The pass-through from ECB policy rates to retail interest rates prevailing at commercial banks in Montenegro has been shown to depend significantly on the macroeconomic and banking conditions prevailing in Montenegro. The results suggest that improving the solvability conditions of the commercial banks and performing sound risk management in the banking system are crucial factors in reducing the interest gap between Montenegro and the euro area. They are in line and confirm the results obtained in Swiston (2011) for El Salvador. The benefits of euroization for Montenegro could be significantly increased by strengthening bank supervision and regulation. Further research may address a better understanding of the pass-through from ECB policy rates to retail rates with the aim at proposing policy implications for the Montenegrin authorities.

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