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RESTORING INTERNATIONAL COMPETITIVENESS IN CROATIA: THE ROLE OF FISCAL AND MONETARY POLICY

ABSTRACT: *Croatia has joined the European Union as a country with several substantial structural problems, of which the most important is weak competitiveness. Although competitiveness can be viewed from the 'institutional' perspective, which includes World Development Indicators (WDI) and Doing Business reports, in this paper the authors focus on the more standard view of competitiveness based on unit labour costs (ULC) and real effective exchange rate (REER). As a small, open and highly dollarized/euroised economy that has to coordinate its economic policy with the EU policy framework, Croatia has limited space for increasing international competitiveness using monetary policy measures aimed at (nominal) devaluation of the national currency. Therefore economic policy stakeholders should focus on decreasing unit labour costs and real effective exchange rate mainly through the process of internal devaluation, which is based on adequate fiscal policy measures. In this paper the authors analyse the role of monetary and fiscal policy in the deteriorating real effective exchange rate and unit labour costs since 2000, and their current capabilities and restrictions in restoring international competitiveness. The Structural VAR model (SVAR) is used to estimate the effects of foreign (banking) capital, credit growth, and current public expenditure on REER and ULC. The preliminary hypothesis of the paper is that monetary policy should continue to support bank lending activities and the role of fiscal policy is to achieve an internal devaluation, which will increase the competitiveness of the Croatian economy. Restoring international competitiveness is necessary due to its impact on net exports and consequently the economic recovery of the national economy, which has faced recession conditions for five years in a row. Also, restoring competitiveness is one of the most important preconditions for the success of a small country joining the single European market.*

KEY WORDS: *economic policy, capital flows, competitiveness, SVAR, Croatia*

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1. INTRODUCTION

Croatia joined the European Union as a country with several substantial structural problems, of which the most important is weak competitiveness. As in EU 'periphery' countries, during the 2000s Croatia has experienced strong foreign capital inflows which have fuelled domestic credit growth and made it easier for government to finance higher current and capital government expenditure. Higher consumption in the private and public sectors (based on 'cheap money', mainly from abroad), higher domestic demand, and growth of wages higher than productivity led to appreciation pressures on domestic currency and widening external imbalances (current account (CA) deficit and external debt), indicating a decline in the competitiveness of the Croatian economy. In spite of a wide range of determinants and potential interpretations, two basic approaches in analysing the country's competitiveness can be distinguished.

The result-oriented approach focuses on the past performance of a country's international competitiveness based on different indicators such as export growth, market share in the global economy, real exchange rate, real per capita income, current account balance, the country's presence in high-technology sectors, and comparative advantages. While these indicators capture a country's current and past performance in international competition they do not offer the possibility of forecasting future competitiveness developments.

On the contrary, determinant-oriented approaches assume the existence of correlation between specific determinants and a country's competitiveness. Such determinants include the costs of the production factors labour and capital, technology, and infrastructure, business environment, and other location characteristics. Accordingly, if determinants of competitiveness change in any direction it is possible to draw conclusions about the future development of competitiveness. In other words, the determinant-oriented approach also has a predictive side to it. Most authors focus on the result-oriented approach.

In this paper our research on competitiveness is based on unit labour costs (ULC) and real effective exchange rate (REER) and we analyse the role of monetary and fiscal policy in the deteriorating real effective exchange rate and unit labour costs since 2000, and their current capabilities and restrictions in restoring international competitiveness. The Structural VAR model (SVAR) is used to estimate the effects of foreign (banking) capital, credit growth, and current public expenditure on REER and ULC.

The preliminary hypothesis of the paper is that monetary policy should continue to support bank lending activities and the role of fiscal policy is to achieve an internal devaluation, which will increase the competitiveness of the Croatian economy. Restoring international competitiveness is necessary due to its impact on net exports, and consequently the economic recovery of the national economy, which has faced recession conditions for five years in a row. Also, restoring competitiveness is one of the most important preconditions for the success of a small country joining the single European market.

2. LITERATURE REVIEW

Hildebrandt & Silgoner (2007) offer a comprehensive analysis of competitiveness in the EU-27 by using five competiveness indicators: (1) effective exchange rates based on different deflators (EER, REER), (2) terms of trade (ToT), defined as the ratio of export to import price indices, (3) balance of trade, (4) FDI, and (5) market shares - the development of a country's market share in its most important export markets. The authors come to the conclusion that in the euro area losses in competitiveness can largely be attributed to country-specific factors, especially higher unit labour cost. ULC growth seems to be the main reason for the reduced competitiveness of euro area countries in southern Europe, i.e., Greece, Portugal, Spain, and Italy, although they were in a very good position after the European Monetary System (EMS) crisis. By contrast the authors emphasize the good performance of Central Eastern and South Eastern European (CESEE) countries, supported by relatively high income growth and higher market shares, even though some of them faced increased ULC and constant currency appreciations. High ULC growth can be explained either by particularly strong wage growth, low productivity growth, or both (ECB, 2007). In explaining the cause of wide current account deficits and competitiveness differences, especially in the Eurozone periphery, the authors refer principally to foreign capital inflows.

Chen et al. (2012) find that increased current account imbalances of euro area deficit countries are financed mostly by intra-euro area capital inflows, in particular by the purchase of government and financial institutions' securities, and cross-border interbank lending, which permitted external imbalances to grow over time. Furthermore, the research of Atoyan et al. (2013) clarifies the relationship between capital inflow and current account. The domestic demand boom of 1999-2007 was initiated by bank-intermediated foreign capital inflows, which caused growth of imports and widened CA deficit. Due to the fact that in new EU member states and candidate countries credit lines were extended

to various non-tradable sectors (construction, retail shopping, etc.) growth was built on unsustainably high domestic demand. Nevertheless, large increases in wages and prices eroded the tradable sectors of these economies. As a result, after the escalation of the crisis in Europe, highly indebted economies without a corresponding debt-servicing capacity are left facing the problem of deteriorated competitiveness.

Babecky et al (2008) suggest similar effects of capital inflow on new member states' economies. The authors discuss the role of FDI, pointing out that large foreign capital inflows, irrespective of their nature, tend to appreciate the domestic currency in the short term and/or increase the stock of international foreign exchange rate reserves. Additionally, they confirm that FDI inflows, to the extent that they stimulate either tradable output or import substitution, also have an appreciating impact on the real sustainable exchange rate.

Public sector behaviour is another important determinant that should be mentioned when trying to resolve the competitiveness puzzle. The results of the research of Holm-Hadulla et al. (2010) suggest the existence of a strong, positive correlation between wages in the public and private sectors in the short to medium term. Furthermore, the authors detect a connection between this interrelation and strong public wage growth and loss of intra-euro area competitiveness. As a result of these findings the authors point out the need to strengthen fiscal discipline and reduce the risk of pro-cyclicality in government wage expenditure.

In the same way, Dieppe et al. (2012) confirm that wage spillovers from public sectors might generate an increase in traded (private) sector ULCs, contributing to competitiveness losses in a number of countries. The authors affirm fiscal devaluation as a very appropriate tool to restore competitiveness. This could be especially interesting for monetary union members, since nominal exchange rate adjustments cannot be used to affect their intra-area competitiveness. Practical support for this approach could be found in Baltic economies.

Purfield & Rosenberg (2010) examine the macroeconomic adjustment of Baltic countries during the 2008-2009 crisis. Due to high euroisation and potentially very high exchange rate pass-through (just like Croatia), their authorities focused on achieving macroeconomic stability through internal devaluation. In pursuing a strategy of internal devaluation they mostly relied on unprecedented fiscal and nominal wage adjustments.

From this brief literature review it can be concluded that new member states, including Croatia, have experienced similar processes leading to an appreciation of effective exchange rates and an increase in unit labour costs. It can also be concluded that the most successful policies during the crisis aimed to restore competitiveness mainly through the process of internal devaluation. In the next section we present the methodology that will be used to formally quantify the relationship between external, monetary, and fiscal variables and indicators of competitiveness in Croatia.

3. METHODOLOGY AND DATA

We use VAR methodology in order to emphasize the importance of the interdependence between the internal and external shocks and measures of economic policy and to capture the dynamic nature of the analysed problem. Due to the fact that residuals in the reduced form model are mutually correlated (see below), we use the Structural VAR model, which allows meaningful interpretation of the effects of different shocks in impulse response analysis.

Due to the limited length of the time series (52 observations) and to avoid the problem of endogeneity, we estimate two separate models with four variables. In the first model we analyse the effects of government consumption and credit growth on REER. In the second model the variable of interest is ULC, i.e., unit labour costs, while other variables remain the same. In the second stage of the analysis we include foreign capital inflow as a 'control' variable, because it affects both the capacity of government spending and the stock of domestic credit.

Our baseline models take the form[1]:

$$\sum_{s=0}^{p} A_s y_s = \varepsilon_t, \tag{1}$$

where y is a vector of endogenous variables which includes first differences of real effective exchange rate[2] REER (model 1) or real unit labour costs[3] ULC (model 2), deflated and seasonally adjusted values of domestic credit (DC_t) and general government current consumption (G_t) for the period 2000Q1-2013Q1. Matrix A_j is a matrix of structural coefficients which contains the information on the

1 Notation follows Krznar and Kunovac (2010)

2 Increase of REER means real depreciation, i.e., stronger competitiveness.

3 Increase of ULC means that real compensation to employees grows faster than total productivity, i.e., weaker competitiveness.

relationship between all variables in the model to period p. Vector ε_t is a vector of independent normally distributed random errors, with distribution MVN(0,I).

Model (1) cannot be directly estimated using OLS (because of contemporaneous effects, which are correlated with ε_t) so we estimate a reduced form model. Furthermore, the analysis is based on impulse response functions so it is necessary that shocks are mutually uncorrelated. By multiplying (1) with A_0^{-1} the reduced form model (which we estimate) takes the form:

$$y = \sum_{s=1}^{p} B_s y_{t-s} + u_t \tag{2}$$

where $A_0^{-1}\varepsilon_t = u_t$, MVN(0,$\Sigma_u$) and $B_j = A_0^{-1}A_j$, j=0, …p.

The number of time lags in model (2) is set to 1, according to LR, FPE, and AIC criteria[4]. A greater number of lags is also undesirable due to the short length of the time series. Also, considering the frequency of data, selection of this time lag has its anchor in economic intuition. Adequacy and stability analysis is conducted for model (2). The results of the residual analysis (tests of autocorrelation and heteroskedasticity) and the stability test indicate that the model is appropriate and stable[5]. The next step of our analysis is to retrieve structural shocks, based on the information from model (2), in order to conduct impulse response analysis on mutually uncorrelated (interpretable) residuals.

According to Lutkepohl (2005), in impulse response analysis the emphasis has shifted from specifying the relations between the observable variables directly to interpreting the unexpected part of their changes or the shocks. Therefore, it is not uncommon to identify the structural innovations ε_t directly from the forecast errors or reduced form residuals u_t. One way to do this is to think of the forecast errors as linear functions of the structural innovations, so we have the relation

$$u_t = B\varepsilon_t \tag{3}$$

where u_t=[$reer_t$, g_t, dc_t]' is a vector of reduced-form innovations in the first model, u_t=[ulc_t, g_t, dc_t]' in the second model, and ε_t is a vector of structural (mutually uncorrelated) innovations, where $\Sigma_u = B\Sigma_\varepsilon B'$. Normalizing the variances of the structural innovations to one $\varepsilon_t \sim (0, I_k)$ gives $\Sigma_u = B\,B'$. Due to the symmetry of the covariance matrix, these relations specify only K (K+1)/2 different equations and

4 LR=20.02265* (1); FPE=8.37e+11* (1); AIC=35.96275*(1)

5 See Appendix

we need to impose K (K–1)/2 further relations to identify all K^2 elements of B. As the number of endogenous variables is K=3, we need to impose three restrictions. In order to identify this system, we make some assumptions about the economic mechanisms and interdependences.

To better understand the identification process, equation (3) can be written in the form of the system of equations[6]:

$$reer_t = a_1 g_t + a_2 dc_t + \varepsilon_t^{reer} \quad (4)$$

$$g_t = b_1 dc_t + b_2 reer_t + \varepsilon_t^{g} \quad (5)$$

$$dc_t = c_1 reer_t + c_2 g_t + \varepsilon_t^{dc} \quad (6)$$

Firstly, we assume that government spending cannot instantaneously react to shocks in unit labour costs or real effective exchange rate (b_2=0), while it can react to shocks in domestic credit supply, which gives us one restriction. Secondly, we assume that credit supply cannot instantaneously react to changes in government spending and shocks in unit labour costs or real effective exchange rate (c_1=c_2=0), which gives us another two restrictions. Thus, this system is just-identified.

In the second step of the analysis we include restrictions on the effects of foreign capital inflows on the whole system. The inclusion of the fourth variable requires an additional three restrictions. The extended system of equations takes the form[7]:

$$reer_t = a_1 g_t + a_2 dc_t + a_3 bis_t + \varepsilon_t^{reer} \quad (7)$$

$$g_t = b_1 dc_t + b_2 reer_t + b_3 bis_t + \varepsilon_t^{g} \quad (8)$$

$$dc_t = c_1 reer_t + c_2 g_t + c_3 bis_t + \varepsilon_t^{dc} \quad (9)$$

$$bis_t = d_1 reer_t + d_2 g_t + d_3 dc_t + \varepsilon_t^{bis} \quad (10)$$

We obtain these restrictions by keeping restrictions from (4)-(6) and assuming that none of the domestic variables can instantaneously (in the same period) affect movements of foreign capital flows (d_1=d_2=d_3=0), while foreign capital inflows (BIS) can affect all variables in the domestic economy.

6 In model (2) REER is substituted by ULC.

7 The vector of reduced-form residuals comprises one more variable: u_t=[$reer_t$, g_t, dc_t, bis_t]'

Data on total domestic credit stock, real effective exchange rate, and unit labour costs were obtained from the statistics of the Croatian National Bank, while data on general government current consumption were obtained from the national accounts statistics of the Croatian Bureau of Statistics. Foreign banking capital inflows were obtained from the locational banking statistics of the Bank for International Settlements (BIS) and they represent assets of BIS reporting banks in Croatia. Monthly series (domestic credit stock and real effective exchange rates) were adequately transformed to quarterly series. We use quarterly series because data on BIS reporting bank assets, government consumption, and unit labour costs are available only on a quarterly basis. Domestic credit and government consumption series were seasonally adjusted using the ARIMA X12 method.

To achieve stationarity of time series all data was first-differenced, because all variables have unit roots in levels (see Appendix). Even though some authors emphasize that by differencing the data the researcher loses information on the long-term relationship between variables, stationarity is important to obtain plausible results of *t*-tests, such as in lag-length tests. Also, even though VAR models can be stable without stationarity, it is more likely that a stationary AR process results in a stable VAR model, which is very important in impulse response analysis because stability ensures that initial shocks in the system 'wear off' in time, i.e., there are no 'explosions' in the series.

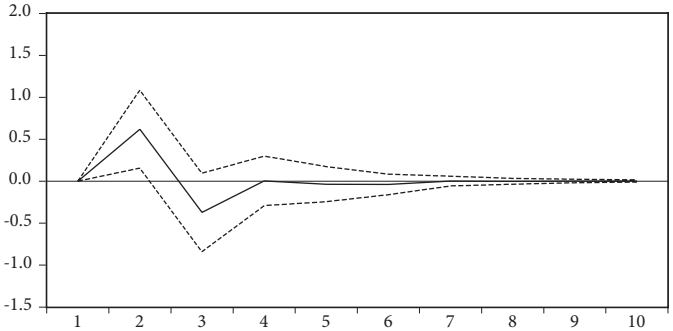
4. RESULTS

Based on the methodology explained in the previous section, we obtained the results which we present in the following paragraphs. As is usual in VAR-based literature we present and comment on our results in the form of impulse response functions. The solid line in the following graphs represents the impulse reaction of the selected variables to structural shocks while the dotted line represents the 95% confidence interval. In the first four graphs we present the results of the system (4)-(6) and in the second four pictures the results of the system (7)-(10).

Figure 1 and Figure 2 show the responses of the real effective exchange rate on structural shocks in total credit and government spending. Figure 1 indicates that credit expansion has a positive (depreciation) and statistically significant effect on the real effective exchange rate in the first period after the initial shock, which becomes negative and statistically insignificant from the second period after the shock. This result is not surprising if one understands the relationship between nominal exchange rate and increased money supply in the short term.

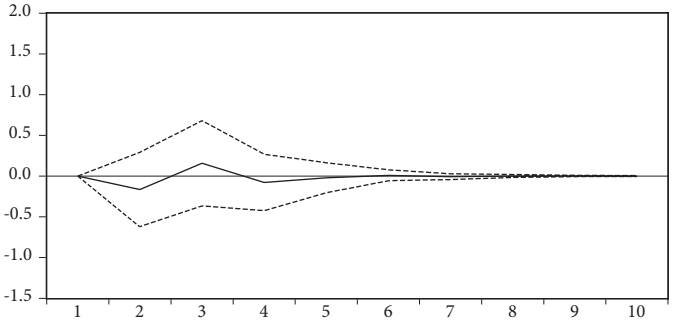
Increased money supply puts depreciation pressures on the domestic currency in the short term. In the longer run one can expect higher 'purchasing power' (as a result of credit expansion) to put pressure on domestic prices. So in the short term (which is presented by impulse responses) the real effective exchange rate is mostly influenced by changes in the nominal exchange rate. On the other hand, the effects of government spending (presented in Figure 2) indicate that government spending has mostly appreciation, but statistically insignificant, effects on the real effective exchange rate in the short term. One can conclude that higher government consumption puts pressures on domestic prices through higher aggregate demand.

Figure 1: Effects of domestic credit expansion on real effective exchange rate



Source: authors' calculations

Figure 2: Effects of government spending on real effective exchange rate

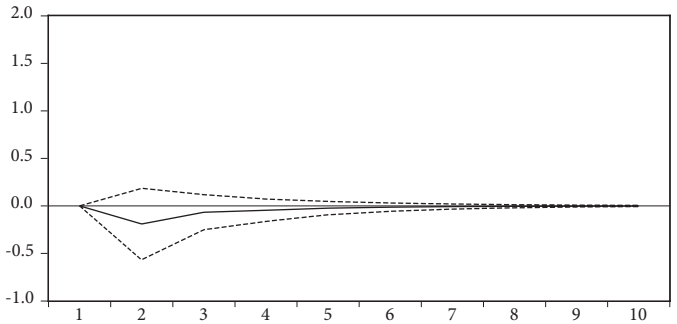


Source: authors' calculations

In the next two graphs we show the effects of domestic credit expansion and government spending on unit labour costs. Figure 3 indicates that domestic credit expansion has negative but statistically insignificant effects on unit labour

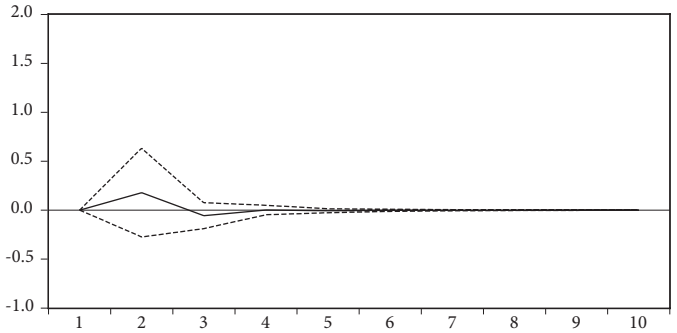
costs. Lower unit labour costs can be explained as follows. Credit expansion in the short term affects the denominator (increase) in the unit labour cost formula[8] by increasing GDP, while other components of ULC (wages and number of employees) can be affected only indirectly (through GDP) in the longer term. Figure 4 indicates that government spending mostly increases unit labour costs in the short term, but the effect is statistically insignificant. Rising unit labour costs in this case can be explained by the fact that government consumption from national accounts includes the costs of compensation (wages) to public sector employees, which increases the aggregate level of wages, the numerator in the ULC formula.

Figure 3: Effects of domestic credit expansion on unit labour costs



Source: authors' calculations

Figure 4: Effects of government consumption on unit labour costs



Source: authors' calculations

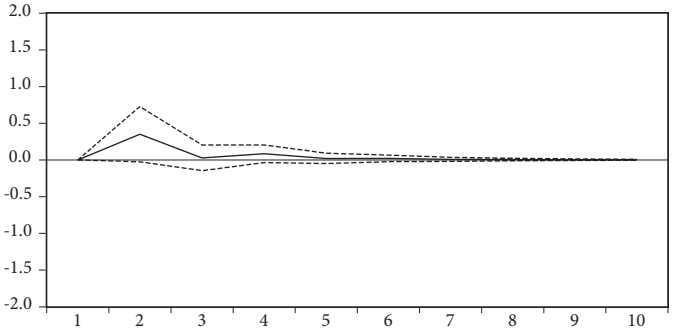
In the following graphs we show the effects of domestic credit expansion and government spending on real effective exchange rate and unit labour cost after the inclusion of the 'control' variable, foreign banking capital flows from

8 ULC=gross wages/productivity; productivity=GDP/number of employees.

BIS reporting banks. As we have already mentioned, we use this variable as a 'control' variable because foreign banking capital was an important source of credit expansion in Croatia and, indirectly, of higher government consumption, because domestic banks have financed government deficits through T-bills for most of the last twelve years.

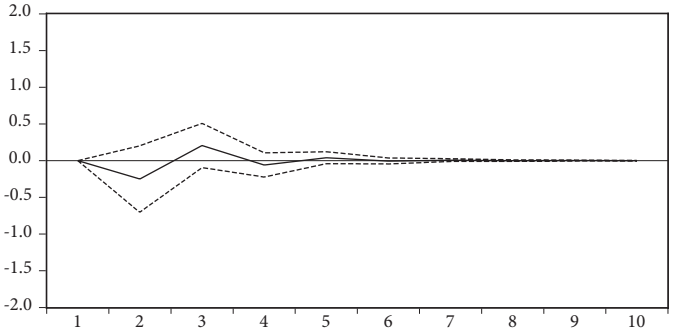
Figure 5 shows that domestic credit expansion again has depreciation effects on the real effective exchange rate, which is now present in the whole analysed period, unlike the effects presented in Figure 1. Also, the impulse is slightly weaker after the inclusion of the 'control' variable. Figure 6 indicates that the effects of government consumption on real effective exchange rate, after the inclusion of the effects of foreign capital flows, have remained mostly unchanged. The main mechanisms and the relationship between credit expansion, government spending, and real effective exchange rate can be explained as earlier.

Figure 5: Effects of domestic credit expansion on real effective exchange rate



Source: author's calculations

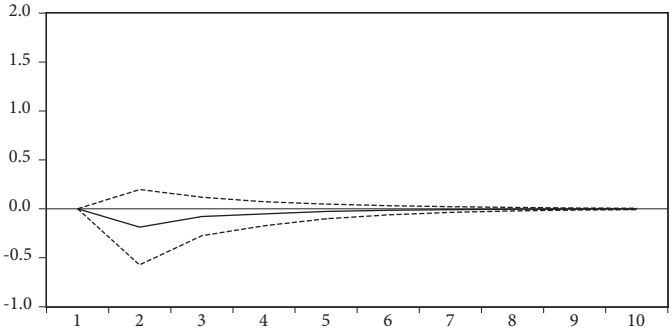
Figure 6: Effects of government spending on real effective exchange rate



Source: author's calculations

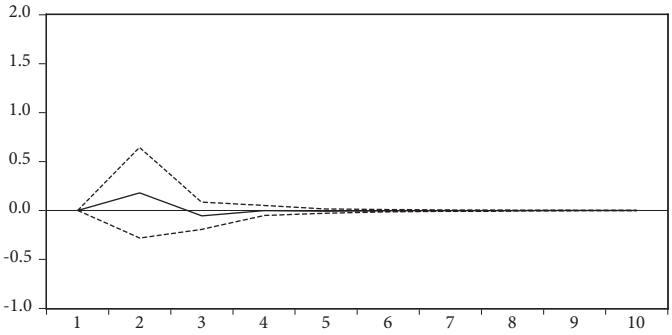
In the following graphs we show the effects of domestic credit expansion and government spending on unit labour cost after the inclusion of the effects of foreign banking capital flows from BIS reporting banks. It can be concluded that Figure 7 and Figure 8 indicate that there is no significant difference between the effects in this case and in the earlier case without foreign capital flows. As in the previous paragraph we can say that the main mechanisms and the relationship between credit expansion, government spending, and unit labour costs can be explained as earlier.

Figure 7: Effects of domestic credit expansion on unit labour costs



Source: authors' calculations

Figure 8: Effects of government consumption on unit labour costs



Source: authors' calculations

5. CONCLUSION

From the previous paragraphs we can conclude that the only statistically significant result in our analysis is that of domestic credit expansion on real effective exchange rate. As was explained earlier, that effect is the result of the dominant effect of credit expansion on nominal exchange rate in the short term. In theory, policy makers could 'take advantage' of this effect and try to improve the competitiveness of the Croatian economy in the sense of real exchange rate depreciation.

However, due to the dirty-float exchange rate system in Croatia (which is the consequence of the strong eurisation of the banking system), monetary policy makers cannot exploit this mechanism by, for example, easing the regulatory framework. Such a policy would stimulate pass-through effects and lead to financial instability in the banking system (Croatia has the recent negative experience of the strong appreciation of the Swiss franc which led to an increase of Non Performing Loans). That is why economic policy should be mostly oriented towards fiscal policy measures.

Even though effects were not found to be statistically significant, our analysis indicates that fiscal consolidation could have depreciation effects on the real exchange rate. Furthermore, results suggest that fiscal expansion could lead to an increase of unit labour costs, which means that fiscal consolidation could result in their decrease. Also, fiscal consolidation is important in the broader sense of competitiveness because fiscal stability is one of the most important institutional indicators of international competitiveness on various scales.

All the mentioned results should be taken with caution due to several methodological issues. Firstly, because of the limited length of the time series one should consider problems related to central limit theorem (CLT) and important assumptions of regression analysis. Secondly, even though our models are stable and there are no problems of autocorrelation and heteroskedasticity, tests of residual normality indicate that residuals in our models are not normally distributed, which can be explained by the limited length and quality (presence of structural breaks) of the time series. Future research in this area should focus on the impact of the broader scope of foreign investment and investigate the long-term relationship between monetary and fiscal variables and indicators of international competiveness.

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7. APPENDIX

A Unit Root Tests

Method	Statistic	Prob.**
ADF - Fisher Chi-square	4.80554	**0.9038**
ADF - Choi Z-stat	0.78522	**0.7838**
Null Hypothesis: Unit root (individual unit root process)		
Series: REER, ULC, TC, G_SA, BIS		

B2. Residual Normality Test				
Model 1	Component	Jarque-Bera	df	Prob.
	1	0.866447	2	0.6484
	2	11.18637	2	0.0037
	3	23.78485	2	0.0000
	Joint	35.83767	6	**0.0000**
Model 2	Component	Jarque-Bera	df	Prob.
	1	0.171647	2	0.9178
	2	17.39913	2	0.0002
	3	12.36956	2	0.0021
	Joint	29.94033	6	**0.0000**
Model 3	Component	Jarque-Bera	df	Prob.
	1	0.904670	2	0.6361
	2	8.219732	2	0.0164
	3	24.65043	2	0.0000
	4	2.070287	2	0.3552
	Joint	35.84512	8	**0.0000**
Model 4	Component	Jarque-Bera	df	Prob.
	1	0.136535	2	0.9340
	2	16.61644	2	0.0002
	3	12.19952	2	0.0022
	4	1.614799	2	0.4460
	Joint	30.56730	8	**0.0002**
Ho: Residuals are normally distributed				

B VAR Adequacy Tests

B1. VAR Stability Tests		
Model 1	Root	Modulus
	0.560587	0.560587
	-0.337857	0.337857
	-0.254016	0.254016
No root lies outside the unit circle		
Model 2	Root	Modulus
	0.557495	0.557495
	-0.218269	0.218269
	0.011056	0.011056
No root lies outside the unit circle		
Model 3	Root	Modulus
	0.552237	0.552237
	-0.337764	0.337764
	-0.236731	0.236731
No root lies outside the unit circle		
Model 4	Root	Modulus
	0.556048	0.556048
	-0.210297	0.210297
	0.026437 - 0.007429i	0.027461
No root lies outside the unit circle		

B3. VAR Residual Serial Correlation LM Tests							
Model 1	Lags	LM-stat	Prob	**Model 3**	Lags	LM-stat	Prob
	1	10.21089	0.3337		1	35.68750	0.0732
	2	5.815574	0.7582		2	14.65958	0.5497
	3	3.970938	0.9133		3	16.12363	0.4444
	4	16.24116	0.0620		4	30.81347	0.0942
	5	6.666272	0.6718		5	14.15841	0.5869
	6	7.515379	0.5836		6	16.96942	0.3876
	7	2.558827	0.9793		7	7.401570	0.9647
	8	6.692415	0.6691		8	11.86681	0.7531
	9	13.32195	0.1486		9	25.81283	0.0567
	10	4.631006	0.8652		10	10.70194	0.8275
Model 2	Lags	LM-stat	Prob	**Model 4**	Lags	LM-stat	Prob
	1	6.492376	0.6898		1	27.11099	0.0403
	2	3.634891	0.9338		2	11.74334	0.7615
	3	6.837056	0.6541		3	20.55639	0.1962
	4	16.85370	0.0511		4	28.89930	0.0246
	5	6.942827	0.6431		5	14.00749	0.5982
	6	7.238396	0.6123		6	15.88340	0.4611
	7	3.143112	0.9583		7	8.988259	0.9139
	8	9.018978	0.4355		8	14.42212	0.5673
	9	7.183638	0.6180		9	24.49780	0.0792
	10	6.577409	0.6810		10	15.24265	0.5069
Null Hypothesis: no serial correlation at lag order h							

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