THE TRADE DEFICIT AND BANKING SECTOR RESULTS IN ROMANIA AND BULGARIA

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Abstract
We tested for the significance of macroeconomic variables that condition non-performing loan ratios. Our estimates for Bulgaria and Romania support the hypothesis that the growth of available finance might harm banking performance and deteriorate NPL dynamics, most probably due to the overheating of economies. Since we confirmed that the dynamics of net exports of these economies deteriorated the NPL ratio, the weakening of growth in export-oriented industries could lead to economic contraction with a direct impact on the sustainability of banking-sector results in these countries. Large current account deficits are typical for emerging markets and do not pose a problem as long as they are caused by the importing of capital goods, and, if future export growth is strong enough to reimburse foreign debt. Structural dependence on external financing - which is in part a by-product of the effect of low levels of internal saving - have led to large current account deficits and financial instability.

Keywords: cyclicality, non-performing loans, systemic risk, asset quality, economic growth.

JEL Classification: F47, G15, G21

Introduction

In response to a global financial crisis in the 1980s and 1990s, national and international institutions began carefully monitoring the soundness of the financial system. As a result, the bulk of financial stability indicators have been greatly extended (Mörttinen et al., 2005). Credit relative to GDP, the net open position in foreign currency to capital, the geographical distribution of loans to total loans, the share of non-performing loans to total loans as well as foreign-currency-denominated loans to total loans are often used as indicators of financial stability and balance-sheet quality. According to the studies of Schinasi (2005) and Kool (2006), common exposure to macroeconomic risk factors across banks is a source of systemic risk that influences the quality of a loan portfolio, which can

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be expressed as the non-performing loan to total gross loan (NPL) ratio. An increasing ratio may be a signal of deterioration in banking sector results. In theory, we would expect the non-performing loans to total loans ratio to be procyclical within the economic cycle.

In Bulgaria and Romania, the banks recorded a decline in their non-performing loans ratio. The outlook for the banking sector results possibly reflects a favorable assessment of their economic growth. The increasing indebtedness of the private sector could become a cause for concern if the macroeconomic environment develops less favorably.

Romania and Bulgaria grew strongly on the back of strong household spending accelerating investment growth and were the main beneficiaries of foreign direct investment. The sizeable productivity increases and moderate wage growth as well as cuts in social security contributions improved external competitiveness. Inflow of foreign capital contributed to a significant growth in liquidity and supported additional supply of loans, while the foreign direct investment expended the capability of countries to service foreign debt before 2006. The credit-led domestic demand growth was accompanied by macroeconomic imbalances like overleveraged households and external imbalances. Because of high current account deficits there is a risk of sustainability in the balance of payments.

Due to the fact that Romania and Bulgaria entered as the last two members into European Union and because they experienced very rapid credit growth in similar macroeconomic environment, we decided to compare these two economies in the context of cyclical movements and banking sector results. We analyzed the relationships between the non-performing loan ratio and macroeconomic variables as a source of systemic risk in order to assess the banking sector's vulnerability to bad loan performance on a macroeconomic level. In the second chapter, the literature overview and the theoretical background of empirical analysis is presented. In the third chapter, we summarized the characteristics of the macro-economic environment and the banking sector in Bulgaria and Romania. In the fourth chapter, the methodology, the empirical analysis and the results are explained. The implications of the empirical analysis are revisited in the conclusion.

1. Overview of the literature

The empirical findings presented in the literature (in the text below) are an important source of the hypothesis when it comes to the responsiveness of the NPL ratio on macro/banking factors.

Quagliariello (2003) presented a regression between the evolution of the NPL ratio as the dependent variable and a set of explanatory variables: real GDP growth rate, the growth of real gross fixed investment and consumption, changes in the unemployment rate, the consumer price index (CPI), the real exchange rate and the M2 growth rate. Babouček and Jančar (2005) investigated economic developments via unemployment, GDP growth, export, import, appreciation, CPI and credit growth as indicators of the NPL ratio performance. Hoggarth et al. (2005) investigated the link between loan write-offs and output gap, retail prices, real estate prices, the nominal short-term interest rate and the real exchange rate. Čihák et al. (2007) compared system-focused stress testing methods and discussed issues relating to the design of stress tests for the Czech banking system. Jakubík (2007) employed the regression method for NPL inflow estimation using real GDP, real

effective exchange rates, the CPI, the loan to GDP ratio, unemployment, and real interest rates as explanatory variables.

Theoretical background. First, the majority of studies have confirmed that GDP/(net)export growth is a major challenge to loan portfolio quality and the dynamics of the NPL have been proven to be pro-cyclical with respect to economic growth. Periods of economic growth and strong demand for a country's exports have a positive effect on the domestic corporate and household sectors (Borio et al. 2001). Large current account deficits are typical for emerging markets and do not pose a problem as long as they are caused by the importing of capital goods, and, if future export growth is strong enough to reimburse foreign debt (KBC AM, 2008; Calvo and Mendoza, 2000). Secondly, the empirical record associated with an explicit analysis of the foreign exchange rate-NPL relation is mixed, partly as a result of heterogeneous specifications for exchange rate variables and partly because researchers were examining economies with different degrees of foreign trade openness, as well as with dissimilar debt exposure in individual sectors. The worsening of banking sector mismatches and the NPL ratio can occur - when borrowers borrow in foreign currency (or their loans are nominated in foreign currency) and pay back credit in domestic currency - due to the domestic currency depreciation that threatens the NPL performance and increases debt burdens (Edwards, 2001). On the other hand, appreciation of the real exchange rate (as the result of the higher net foreign currency assets of the banking sector or export growth or Balassa-Samuelson effect) can contribute to the build-up of a crisis through shifts in international competitiveness coupled with terms of trade deterioration and with direct implications on loan performance. This can be seen in the fact that bank lending surveys show that loans granted to enterprises are partly hedged by their export proceeds (Kaminsky and Reinhart, 1999). Thirdly, capital inflows can result in an expansion of domestic credits; and a sudden withdrawal of bank deposits (leaving domestic banks illiquid) might take place after a period of large inflows of foreign short-term capital when domestic interest rates fall, when depreciation is expected or when confidence in the economy wavers, when disruption in financial markets or balance of payments crises is expected (Calvo and Mendoza, 2000). Fourthly, applying soft budget constraints (due to the money stock growth prevalent in many transition countries around EU accession) for credits to enterprises or households, may lead to considerable losses in the economy when investments turn out to be counterproductive (Berglöf and Roland, 1995) or when the household liabilities/income ratio is extremely high (Kiss et al., 2006). Fifthly, according to Hoggarth et al. (2005) rising inflation makes borrowing more expensive and causes a considerable drop in loan portfolio quality. Sixthly, empirical evidence suggests that the growth of interest rates adversely affects NPL through two channels (see, for example, Zeman and Jurča, 2008). Initially, more expensive sources and loan instalments with floating rates decrease the ability of firms and households to meet their financial obligations. Further on, increasing interest rates may also decrease the economic value of banks due to an unhedged interest rate position. An increase in short-term interest rates (paid on liabilities) forces banks to increase the interest rates paid to depositors, but because the asset side of the bank balance sheets usually consist of loans of longer maturity at fixed interest rates, banks cannot increase their lending rates quickly enough; they must then shoulder the losses because of maturity transformation.

2. The banking sector in the macro environment of the New Member States

Due to the fact that catching-up economies required investment levels that exceeded domestic savings, the New Member States (NMSs) financed a part of their investment through foreign direct investment (FDI) and the huge current account deficits have been financed by a steady increase in the net-inflow of FDI, net portfolio investment and foreign currency loans (KBC AM, 2008). The positive impact of FDI and the import of capital goods on *economic growth* is visible in the diversification of the foreign trade structure, the increase of labour productivity and the improvement of competitiveness in the *export* industries (Brandmeier, 2006), an improvement in the market structure and high growth rates.[1] *Economic growth* has been high and widespread: *domestic demand*, boosted by a foreign-financed boom in bank lending, real wage growth on the back of productivity gains; and *export growth* have all contributed to GDP growth after EU accession.

The catching-up process in the New Member States - combined with the general banking sectors' pro-cyclicality - has reinforced credit growth around the EU accession area. Nominal convergence[2] and the lowering of interest rates have also increased demand for leveraging amongst companies and boosted private consumption (Brzoza-Brzezina, 2005). Bank credits have remained an important source of financing, for both investment and consumption. Credit growth in the NMSs has been largely foreign-funded and loans to the private sector have been growing at a rapid pace in the period from 2002-2007.

2.1 Macro environment

Romania and Bulgaria have become one of the main beneficiaries of FDI in the tradable sector in the Central and Eastern European Region due to their EU accession, the relatively low wages of the highly educated labour force and the rapidly growing domestic market.

After EU accession, Romania and Bulgaria faced the recovery of EU economies and the positive externalities of accession to the EU have contributed to economic growth. In *Bulgaria*, higher-than-expected revenue performance and economic growth as a strong stimulus for channeling budget resources, declining tax evasion and improved tax collection have resulted in a general government budget surplus (Table no. 1).

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[1] The productivity increases in the tradable sector in the nineties induced significant effects with regard to the overall *inflationary differences* between the NMSs and their main Western trading partners, owing to the Balassa-Samuelson effect (Chmielewski, 2003; Breuss. 2003).

[2] Stavárek (2009) examined nominal convergence of several eurocandidates' currencies during the recent period, including Romanian leu.

Table no. 1: Macroeconomic and banking sector indicators for Bulgaria and Romania

Macro economic environment (2006/2007/2008[a])							
	GDP % growth	Credits/GDP (95/00/06)	Inflation (yoy, ann. in %)	Budget balance (% of GDP)	Public debt (% of GDP)	Current account (% of GDP)	FDI inflow (% of GDP)
Bulgaria	6.3/6.2/5.6	41/18/52	7.3/8.4/11.0	3.6/3.5/3.5	22.8/19.3/16.0	-17.8/-21.5/-20.2	23.6/21.1/14.5
Romania	7.9/6.0/5.5	16/14/28	6.6/4.8/7.4	-1.6/-2.3/-3.0	12.4/12.5/12.8	-10.4/-13.9/-14.2	8.9/5.8/4.5
Banking sector indicators (commercial banks, 2006/07)							
	Asset share of foreign banks/states' share (in %)	Total capital ratio (2006)	NPL (2001/2003/2006/2007)[b]	ROE / ROA[d]	FCLo/TLo[e] (2005) in %	Rating Moody's / S&P (2005)	EBRD index of banking sector reform[c]
Bulgaria	79/12	14.5	3.4/2.8/2.2/2.2	21.5/2.1[f]	40	Baa3/BBB+	3.7 - 3.7
Romania	59/34	17.8	8.3/8.2/8.4/8.0	18.8/2.0[f]	48	Baa3/BBB-	3.0 - 3.0

[a] Exchange rate regime: currency board (EUR) in Bulgaria; and managed float (EUR) in Romania since November 2004.
[b] In Bulgaria and Romania: NPL – substandard, watch, doubtful, uncertain, loss. Substandard loans are 91 to 180 days past due (and require provisioning between 15 and 40), doubtfull loans are 181 to 365 days past due (and require provisioning between 40 and 99) and losses are not repaid (requiring 100% provisioning).
[c] The ERBD indicators of banking sector reform are measured on a scale of 1 to 4+ (for 1997 and 2003): score 2: established internal currency convertibility, significant liberalised interest rates and credit allocation; score 3: achieved substantial progress in establishing prudential regulation and supervision framework; score 4: level of reform approximates the BIS institutional standards.
[d] ROA, ROE: average of the period, return on assets, return on equity.
[e] FCLo/TLo: foreign currency loans in total loans to private sector; and PSL/PSD: private sector loans in private sector deposits.
[f] Data for 2004 and 2006.

Source: IMF (2008), KBC AM (2008).

The Established Property Fund of December 2005 compensated citizens for the non-return of property confiscated during the communist period, and the fiscal deficit expanded in *Romania.* Huge capital inflows lead to an unsustainable level of exchange rate appreciation in *Romania* and, supported by the strong appreciation of currency, the stock of public debt declined (Barisitz, 2005).

Progress in the implementation of reforms has been an important driver for *Bulgaria* in achieving macroeconomic stability and productivity improvements. EU membership has been expected to allow further economic expansion due to the fact that consumption and investment came to the forefront of economic expansion after 2003. The significantly greater increase in domestic demand over overall growth (Minassian, 2008) implies the mounting negative growth contribution from net exports mirrored in a ballooning current account deficit (KBC AM, 2008). Due to the fact that Bulgaria has channelled a significant part of its FDI into the non-tradable sector (real estate and services) and because of its high current account deficit, there is a risk that FDI has contributed to export capacities and raises the risk of sustainability in the currency board regime.

Romania's economy grew strongly on the back of strong household spending, accelerating investment growth and FDI. The credit-led domestic demand growth was accompanied by macroeconomic imbalances like overleveraged households and external imbalances. Sizeable productivity increases and moderate wage growth until 2003, as well as cuts in social security contributions, contributed to the external competitiveness of Romania. Buoyant growth in *Romania* rode on the back of robust consumption spending (stimulated by easier access to credit, lower taxes and lowering unemployment) together with accelerating investments (as a result of reconstruction activities and a large number of programmes co-financed by the EU). FDI has been persistently strong, GDP growth has been quite favourable, but the contribution of net exports has remained mostly negative due to strong domestic demand that has pushed up the external deficit (KBC AM, 2008*)*.

2.2 The banking sector

In *Bulgaria*, state-owned banks provided credits to loss-generating state owned enterprises, relying on the refinancing programme of the Bulgarian National Bank (significantly after 1995) acting as the first instance creditor (Mishev, 2006). This led to a devastating bank crisis in the second half of the 90s (Feridun, 2006). Following an economic and financial crisis in 1996/97 the New Law on Banks was introduced in 1997. In compliance with EU directives and regulations, banks have been forced to introduce a number of regulations to ensure adequate risk diversification. *Romania* commenced fairly late with the reforming of its banking system. After weathering the financial and banking sector crisis in the late 90s, the banking sector began to consolidate and the number of banks fell significantly. The success of privatization contributed to a positive performance in the Romanian banking sector. Despite this, it has the characteristics of an oligopoly: a large number of banks and rapid assets have grown over the period from 2002-2005 (Duenwald et al., 2005).

Foreign banks have significantly contributed to the transformation of the banking sector in *Romania* and *Bulgaria* (Barisitz, 2005). Sustained economic recovery and foreign ownership of the banking sector have increased competition[3] and boosted confidence (Walko et al., 2006).

The EBRD indicators (Table no. 1) show that the capacities for effective *prudential regulation and supervision* have been developed. Some of the most pertinent risk problems

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[3] Introduction of the competition laws that accompanied the accession to the EU brought a clearer definition of the normal behaviour and of the protection instruments against the anticompetitive practices (Vass, 2008).

for the banking sector have shown themselves to be: the persisting lag in restructuring the real sector (particularly state-owned enterprises and loss-prone firms), lack of financial discipline, partly non-transparent insolvency procedures (Barisitz, 2005).

2.3 Lending in the banking sector

In *Romania*, the cautious approach of banks to lending after the banking crisis in the late 90s and their preference for doing low-risk business led to a low share of private sector loans to GDP (Table no. 1). The growth in private consumption - triggered by strong real wage growth - led to a pick-up in lending in 2003. Domestic credits have primarily been financed by domestic deposits and external sources. The banks' ability to fund loan expansion was boosted by strong capital inflows through the banking system, amid high global liquidity and low interest rates. With the opening of a capital account in 2004, household preferences started to switch from domestic to foreign-currency denominated loans. With foreign borrowing becoming important, the net foreign asset position of the banking system deteriorated in Romania as well. The share of total credit institutions assets in GDP rose from 36.6% in 2004 to 62.5% in 2007 (which is much lower than in the Euro-area) (Naraidoo et al., 2008). The National Bank of Romania started to implement measures to curb domestic credit growth after 2004.

In *Bulgaria,* banks are predominantly deposit financed and banking sector assets have been increasingly dominated by claims on the domestic sector, while securities and repurchasing agreements continue to play a subordinate role. The banking sector's net external position has deteriorated in recent years, as domestic savings have not kept up with the expansion of lending activity in the late 90s and beginning of 2000. The banks did not meet the growing demand for loans and started decreasing their net foreign assets balances, providing them as credit lines and credits (Mishev, 2006). The period after 2001 saw a great credit expansion after the crisis. In light of the recent credit boom and the failed attempts of the Bulgarian National Bank to curtail loan growth, the banking sector's risk profile has deteriorated somewhat. Banks reduced their capital base and registered an increase in non-performing loans, thus enhancing the vulnerability to a systemic banking crisis. While well-capitalized banks have tended to expand credit in proportion to their capital base, banks with weak capital base engaged in excessive risk taking, and expanded credit despite the growing ratio of non-performing loans (Erdinc, 2009). Bulgarian National Bank introduced measures in order to decrease credit growth rate in the period from 2004-2006 (Ess et al., 2006).

2.4 Non-performing loans

The transition economies shared a common problem: their banking sectors in the early 1990s were characterized by a relatively small number of large, state-owned institutions that had become burdened by large volumes of non-performing loans. We can point to two reasons for this: first, these countries had to deal with the issue of a large amount of inherited NPL from the past, and second, new NPL's mounted up in the balance sheets of commercial banks due to a lack of experience, government intervention, inappropriate incentives for bank management and poorly designed privatization methods.

In *Bulgaria and Romania*, the structure of NPLs has also improved due to the fact that the worst categories (doubtful loans and loss assets), that previously had a share of around 73%

in Romania and Bulgaria in 2000, decreased to 57% in Bulgaria and to 35% in Romania by the end of 2004. The removal of non-performing loans from balance sheets (predominantly affecting loans to the corporate sector) during the bank restructuring process and improved management skills have improved banks' loan portfolios (Table no. 1, Figure no. 1). These changes in the asset structure display a similarity to the developments in the New Member State-8 over the last decade (Walko et al., 2006).
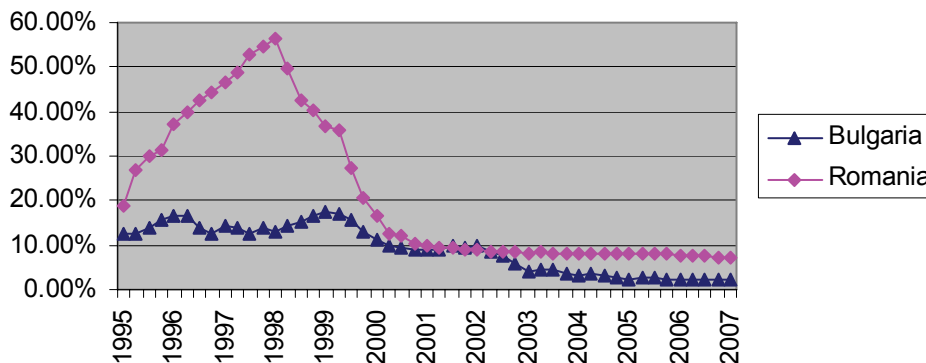

Figure no. 1: The NPL ratio dynamics in Romania and Bulgaria

Source of data: Bank Austria Creditanstalt Database

2.5 Trends and overheating

Structural dependence on external financing - which is in part a by-product of the effect of low levels of internal saving - have led to large current account deficits and financial instability.

In *Bulgaria,* the most immediate effect of the credit boom was an increase in Bulgaria's current account deficit. If the economy runs a persistent current account deficit, its default risk increases as the debt mounts, and external liquidity weakens. In the long run, the deficit can be seen as the increase of foreign ownership in domestic capital resources, decreasing re-investment and economic activity within the domestic economy and taking interest rates abroad. The threat could be the high share of new real estate property and mortgage loans. The price bubble itself could consequently appear after increasing real estate demand. Another threat could be a depreciation of domestic currency and the net foreign asset balances of commercial banks, due to the fact that banks become net external debtors. According to Palmerio (2009), one of the contributors to financial crisis is also financial innovation. In the future, stricter regulation of financial markets may be needed.

In *Romania*, a sudden reversal of capital flow or another external shock, a slowdown in growth and a drop in asset prices could engender a hard landing for the economy. A large part of household loans are denominated in a foreign currency and credit risk through exchange rate exposure is a concern given the large share of often unhedged foreign currency loans (liabilities as a percentage of household income is higher in Romania than in the CEE-8 - except in the Baltics), which confirms a bubble in the housing sector. Despite

good FDI coverage and the recovery of export growth, the sustainability of the external imbalance is, in the medium term, an issue of concern.

3. Empirical analysis

Based on studies of the determinants of the NPL ratio, we constructed a data set of explanatory variables that are usually employed in models.[4] NPLs are generally defined as loans that are more than 90 days past due, which was the definition used in our case.

However, some authors (see, for example, Jakubík, 2007a) emphasize the better performance of NPL inflow variables in empirical estimates. The NPL ratio could be problematic when outflow is given by one-off NPL write-offs, as this ratio can be driven by purely administrative measures. For example, in the new EU Member States, a significant portion of defaulted loans were removed from banks and substituted with government bonds. Since we could not provide the NPL inflow time series, we had to rely on the use of an NPL series (as nominal loans that are at least 90 days past due) as a share of total loans.

To arrive at appropriate specifications in the spirit of the theoretical suggestions, we investigated the time series properties of the data. Nine variables were employed in our empirical analysis as possible predictors of the dependent variable (non-performing loans as share of total loans (NPL)): nominal exchange rate (EXCHR), rate of inflation (INFL), money market interest rate (IR), gross domestic product (GDP), unemployment (U), stock exchange index (SHARES), net export (NETEXP), interm-money (M2), and loans to private sector as a percentage of GDP (LOANS). The variable names are stated in parentheses.

Monthly data for the period from January 1997 to September 2008 were obtained from Eurostat, the National Banks of Romania and Bulgaria, the Monthly Database on Central, East and Southeast Europe managed by the Vienna Institute for International Economics Studies (WIIW), the Bank Austria Creditanstalt Database and the Stock Exchanges of Romania and Bulgaria. The data for the net export variable are available from January 1998 forward. The analysis for Bulgaria starts in October 2000, when the Bulgarian Stock Exchange introduced its first stock exchange index, SOFIX. Since unit root tests applied to the level variables revealed that the variables are I(1), the econometric model employs variables expressed in growth rates as one-period percentage changes. Small letters are used to denote the transformed variables, and the suffix –gr is added to the variable names. The INFL variable is an exception to this rule. As the rate of inflation is already a stationary growth rate variable, the level variable was used.

The lag order of the models was determined with the help of the information criteria, where the maximal lag length was set to 4. The Akaike information criterion selected a model of lag order of 4 while the Schwarz criterion selected a lag order of 3 for both countries. Our choice was to use parsimonious models with a lag order of 3 augmented with lags of the dependent variable in order to deal with autocorrelation. After the insignificant variables

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[4] It is important to note, however, that cross-country variations in asset quality indicators can also be explained by differences in loan classification rules (see notes, Table 1). National practices differ regarding whether ex-post (evidence from past behavior, such as 90-day nonpayment of interest/principal) or ex-ante information (assess future losses by considering forward-looking information) should be used to assess loan classification (IMF, 2008).

were removed, the OLS estimates were obtained, as given in Tables 1 and 2 below. The 10% significance level was used because of the small sample size.

The results of the Ljung Box Q statistics in Table no. 2 and Table no. 3 do not indicate any problems with autocorrelation up to order 12. The equations also proved satisfactory after being tested for the ARCH effects. Due to problems with heteroskedasticity the White heteroskedasticity-consistent covariance matrix estimator was applied.

Table no. 2: Estimated model for Romania

Dependent Variable: $nplgr_t$

Sample (adjusted): 1998M03 2008M09

Included observations: 127 after adjustments

White Heteroskedasticity-Consistent Standard Errors & Covariance

	Coefficient	Std. Error	t-statistic	Prob.
$exchrgr_{t-1}$	0.036682	0.017519	2.093801	0.0384
$irgr_{t-1}$	0.007641	0.004464	1.711684	0.0896
$netexpgr_{t-1}$	0.002074	0.000956	2.170219	0.0320
$infl_{t-2}$	-0.183889	0.036959	-4.975477	0.0000
$m2gr_{t-3}$	0.023376	0.011040	2.117446	0.0363
$nplgr_{t-1}$	2.252359	0.129006	17.45929	0.0000
$nplgr_{t-2}$	-2.434177	0.258080	-9.431878	0.0000
$nplgr_{t-3}$	1.510648	0.238131	6.343776	0.0000
$nplgr_{t-4}$	-0.398153	0.105288	-3.781572	0.0002
$nplgr_{t-10}$	-0.040011	0.023995	-1.667483	0.0981

R-squared	0.974295	Diagnostic tests (p-values)	
S.E. of regression	0.447800	White (cross terms)	0.0002
Log likelihood	-72.96443	Ljung Box (12 lags)	0.1240
AIC	1.306526	ARCH LM (12 lags)	0.4367

Table no. 3: Estimated model for Bulgaria

Dependent Variable: $nplgr_t$

Sample (adjusted): 2001M01 2008M09

Included observations: 93 after adjustments

White Heteroskedasticity-Consistent Standard Errors & Covariance

	Coefficient	Std. Error	t-statistic	Prob.
const	-0.430418	0.180048	-2.390578	0.0191
$irgr_t$	0.026299	0.010850	2.423987	0.0176
$m2gr_{t-1}$	0.097199	0.054803	1.773624	0.0799
$netexpgr_{t-2}$	0.000500	0.000241	2.073500	0.0413
$sharesgr_{t-2}$	-0.019852	0.010386	-1.911352	0.0595
$infl_{t-3}$	0.335319	0.118623	2.826760	0.0059
$nplgr_{t-1}$	2.396003	0.127270	18.82607	0.0000
$nplgr_{t-2}$	-2.885153	0.263942	-10.93103	0.0000
$nplgr_{t-3}$	2.102955	0.301238	6.981035	0.0000
$nplgr_{t-4}$	-0.815134	0.190885	-4.270282	0.0001
$nplgr_{t-6}$	0.138734	0.072086	1.924565	0.0578

		Diagnostic tests (p-values)	
R-squared	0.953486		
S.E. of regression	0.996461	White (cross terms)	0.0001
Log likelihood	-125.2075	Ljung Box (12 lags)	0.0764
AIC	2.950700	ARCH LM (12 lags)	0.3542

The results confirmed the influence of the chosen explanatory variables on the dynamics of the NPL ratio: interest rate, net exports, and money stock dynamics deteriorated the NPL ratio dynamics in Bulgaria and Romania. As expected, we found that an increase in interest rate growth (a coefficient of 0.026 for Bulgaria and 0.007 for Romania), an increase in money stock growth (a coefficient of 0.097 for Bulgaria and 0.023 for Romania), and an increase in net export growth (a coefficient of 0.0005 for Bulgaria and 0.0021 for Romania) raised NPL ratio growth. The impact of stock exchange index returns improved the NPL ratio in Bulgaria (coefficients of -0.020), while exchange rate dynamics deteriorated the NPL ratio dynamics in Romania (a coefficient of 0.037). The higher inflation rate in Bulgaria deteriorated the NPL ratio dynamics (a coefficient of 0.335).

The inflow of foreign capital contributed to significant growth in liquidity and created an additional supply of loans (Stavrakeva, 2006). On the other hand, higher net foreign direct

investment inflows in the tradable sector, gross fixed capital formation, favourable export growth, and net foreign assets of the banking sector expanded the capability of a country in servicing foreign debt (Wu, 2004). Despite good foreign direct investment coverage and the recovery of export growth, the sustainability of the external imbalance is, in the medium term, an issue of concern for the banking sectors. Excess credit growth to households, which has financed increasing consumption and led to deterioration in external accounts, could threaten the stability of the banking sector due to the fact that credit boom-driven deficits are often financed through short-term external debt creation. A slowdown in economic activity and a higher payment deficit balance are also likely to deteriorate NPL ratio growth in Bulgaria and Romania, with negative repercussions on debt repayment (Égert et al., 2006; Kiss et al., 2006).

Conclusions

In this study, we demonstrated that net exports, the interest rate, and money stock dynamics contributed to an increase in the dynamics of the NPL ratio within the observed economies. Our estimates for Bulgaria and Romania therefore support the hypothesis that the growth of available finance might harm banking performance, likely due to soft-loan constraints and the overheating of economies. Since we confirmed that the dynamics of the net exports of these economies deteriorated the NPL ratio, the weakening of growth in export-oriented industries could lead to economic contraction with a direct impact on the sustainability of banking-sector results in these countries. Large current account deficits are typical for emerging markets and do not pose a problem as long as they are caused by the import of capital goods and future export growth is strong enough to reimburse foreign debt.

We can also state that strong economic growth and a decelerating non-performing-loan ratio, within the context of the procyclicality theory, can be interpreted as a signal for economic overheating and therefore as a potential threat to banking sector performance. Structural dependence on external financing - which is, in part, a by-product of the effect of low levels of internal saving - has led to large current account deficits and financial instability.

Changes in bank lending practices and borrower repayment behaviour can bring about an economic decline (Costea and Keen, 2009). Policy measures such as enhancing transparency, resolving conflicts of interest and improving the existing regulatory and supervisory frameworks should be introduced (Daianu and Lungu, 2008).

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