

THE IMPACT OF THE FINANCIAL CRISIS ON CURRENT ACCOUNT SUSTAINABILITY IN LITHUANIA

Rokas Grajauskas*

University of Amsterdam, The Netherlands

Abstract. *The paper deals with the dynamics of Lithuania's current account in two distinct periods – the period in the run-up to the 2008–2009 financial crisis and the period since the crisis. The two main goals of the paper are: 1) to assess the sustainability of the level of Lithuania's current account in the period 1995–2015 using an empirical model based on the intertemporal optimisation approach, and 2) to identify the factors behind the observed trends in Lithuania's current account in the two periods in question. The research has been conducted using the methods of empirical (regression) analysis, theoretical explanations, and descriptive analysis. The paper finds that the current account in Lithuania has been sustainable since 1995, except for two brief periods – the 1999 Russian crisis and in 2009 when Lithuania's economy contracted by more than 15% in real terms due to the global financial crisis. The empirical research has also revealed a shift in the level of the sustainable current account in the post-crisis period but shows an existing gap between the sustainable and the actual current account in Lithuania. Considering the characteristics of Lithuania's economy, the paper concludes that the actual level of the current account in Lithuania is not optimal from the intertemporal point of view.*

Key words: *intertemporal optimisation, current account, deleveraging, rebalancing, capital flight*

1. Introduction

The 2008–2009 global financial crisis in Lithuania, just as in the other two Baltic states, was particularly hard. Lithuania's GDP plummeted in real terms by more than 15% in 2009, and unemployment jumped from 5.8% in 2008 to 13.7% in 2009 and 17.8% in 2010. The current account (CA) also saw an abrupt change. In the earlier 2000s, Lithuania ran a consistently high CA deficit peaking at 14.4% of GDP in 2007. However, as a result of the crisis, the CA turned into a surplus in 2009 and 2010. Despite returning to the negative territory in 2011 and 2012, the CA was in surplus again in 2013. Lithuanian authorities, just as the European Commission, are predicting the CA to turn negative again in the next few years and to stabilise at close to balance. In other words, if the period before the crisis was marked by a clear trend of wide CA deficits, since the crisis Lithuania's net current transactions with the rest of the world have undergone a significant rebalancing.

* *Corresponding author:*

Faculty of Economics and Business, University of Amsterdam, Roetersstraat 11, 1018 WB, Amsterdam, The Netherlands;
e-mail: rokas.grajauskas@gmail.com.

The article is prepared on the basis of author's master's thesis at the University of Amsterdam.

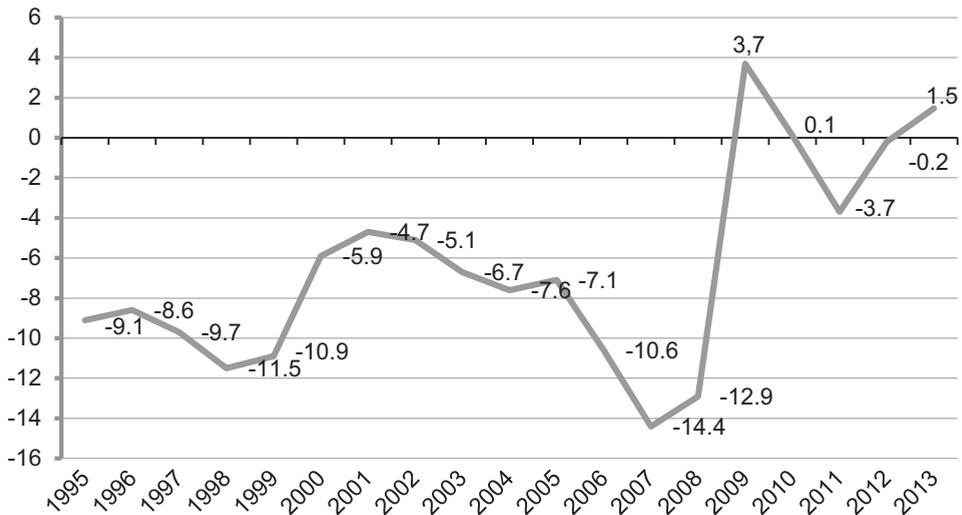


FIG. 1. Lithuania's current account (percent of GDP)

Source: Statistics Lithuania

The aim of this study was to analyse the CA dynamics in Lithuania in two distinct periods: since the beginning of the previous decade up to the crisis in 2008–2009 and since the crisis. The two main research goals were: 1) to assess the sustainability of the level of Lithuania's current account in the 1995–2015 period, using an empirical model based on the intertemporal optimisation approach, and 2) to identify the factors behind the observed trends in Lithuania's current account in the two periods in question. The research was conducted using the methods of empirical (regression) analysis, theoretical explanations, and descriptive analysis.

From the theoretical point of view, the study relies on the model of intertemporal optimisation, developed by Obstfeld and Rogoff (1994, 1996), which considers the CA from the saving–investment perspective and features an infinitely lived representative agent which 'smooths the consumption' over time by lending or borrowing abroad. This framework was complemented by the concept of real convergence, which in the context of the European integration means the catching-up process of the 'new' member states, having in mind the Central and Eastern European (CEE) countries that joined the European Union (EU) in 2004, in terms of income, with the 'old' EU countries. The concept of real convergence has its roots in the neoclassical growth theory, which suggests that during the process of convergence, due to the large catching-up potential and higher investment needs, the lower-income countries might be expected to run large financial account surpluses, and thus CA deficits.

In assessing the sustainability of Lithuania's CA deficit, I have used a VAR model based on the intertemporal approach, which has been employed by different authors to

slight variations and for different periods. Most of the existing research covers the period up to 2004 or 2005. This paper, therefore, contributes to the literature by the analysis of the most recent period, namely since the 2008–2009 crisis up to 2013, and makes projections for 2014 and 2015. Sustainability of Lithuania’s CA will be assessed using the familiar notion of intertemporal budget constraint. The model with some methodological notes is outlined in more detail in the next chapters.

The structure of the paper is as follows. In the second chapter, I present in more detail the main theoretical approaches used to analyse the CA – the intertemporal approach and real convergence. In the third chapter, I develop findings from the empirical model on the sustainability of Lithuania’s CA. In the fourth chapter, I discuss the factors that caused the persistent CA deficit in Lithuania before the crisis, and the post-crisis factors that caused the CA to rebalance. The paper closes with a discussion of the findings and conclusions.

2. Review of theory and literature

The intertemporal approach to the current account was initially proposed by Sachs (1981) but most thoroughly extended by Obstfeld and Rogoff (1994, 1996). The model suggests that countries approach their CA from the position of intertemporal optimisation and are bound by the intertemporal budget constraint. If agents in the economy are expecting a rise in future income, they will borrow today and in this way smooth their consumption over time. The same is true if the demand for investments in the country is high: in order to satisfy this demand and maintain the level of consumption constant, the economy will borrow from abroad to invest today and repay the debt in later periods. As a result, its CA will decrease.

$$CA_t = - \sum_{s=t+1}^{\infty} \left(\frac{1}{1+r} \right)^{s-t} E_t \Delta Z_s . \quad (1)$$

Equation (1) illustrates algebraically the relationship between the CA and the intertemporal budget constraint. The CA in period t depends on the sum of expected changes in the net future income (Z) discounted by r , the interest rate. In other words, the current level of the debt has to match the sum of infinite horizon discounted CA balances. Equation (1) also implies that the CA today can decrease due to the fall in r , which encourages to consume and invest more (and to save less).

The intertemporal approach is based on two important assumptions. First, agents in the economy are forward-looking and base their saving and investment decisions on expectations of future productivity growth, government spending demands, real interest rates, and other relevant variables (Obstfeld, Rogoff, 1994). Second, the repayment of the debt that arises from the negative CA cannot be postponed indefinitely: that is why

the discounted value of the future expenditure cannot be larger than the sum of the current holdings of the net foreign assets and the discounted value of the future revenue (Rodzko, 2004).

The CA sustainability of from the intertemporal point of view simply means that the intertemporal budget constraint is satisfied. As the model suggests, a country running a CA deficit at the current period is expected to run a surplus in later periods. In practice, however, it is enough that the CA deficit would not increase a country's external debt (in relation to GDP). In other words, if the economy is growing at a stable rate, a country can run persistent CA deficits without increasing the debt to GDP ratio.

In the context of Lithuania and other emerging economies, analysis of the CA sustainability from the intertemporal perspective can be complemented by the concept of real convergence. As suggested by the neoclassical growth theory, economic growth depends on the features of the rate of return to capital, which generally tends to decrease in relation to economic growth. The theory predicts that at the same saving rate, the marginal rate of return on capital decreases so that poor countries with a low amount of capital per capita attain higher rates of return than do rich countries with a considerably higher amount of capital per capita (Iancu, 2009). This means that, in the absence of capital restrictions, capital will flow to countries with a higher marginal product of capital, resulting in higher growth rates in these countries.

Real convergence in the context of the EU can be regarded as the process of catching-up, during which external deficits are normal and expected, because capital is supposed to flow to countries with higher return opportunities. Such external deficits can be considered equilibrium phenomena and are not problematic as long as foreign funds are well invested, allowing for a continuous servicing of the debt over time or generating a sufficient return on equity in case of foreign direct investments (FDI) (Lendvai, Roeger, 2010).

Interestingly, the actually observed trend of large capital flows from rich to catching-up countries in the EU is somewhat of an exception, even though it conforms well to the neoclassical theory. The general trend encountered in practice, both in terms of developed and emerging economies, is that, contrary to the neoclassical theory, saving and investment are highly correlated even among countries with open economies and relatively few restrictions on capital movement. This theoretical mismatch between the standard theory and practice is known as the Feldstein–Horioka puzzle and has been identified by Obstfeld and Rogoff (2000) as one of the six major puzzles in international economics¹.

Blanchard and Giavazzi (2002) have shown, however, that in the case of EU countries the link between saving and investment is much weaker. The authors analysed the EU

¹ A related concept is the so-called Lucas paradox. In his seminal article, Lucas (1990) identified a major inconsistency between theory and practice, namely that capital does not always flow from richer to poorer countries with a higher marginal product of capital.

countries that formed the euro area in 1999. They found that this link was significantly reduced due to the financial integration which abolished restrictions on capital flows and harmonised rules on capital movement within the EU. Financial harmonisation substantially improved the transparency of information on potential borrowers in another EU country. It also decreased the risk of appropriation and thus the risk premium. With the creation of the euro, the currency risk disappeared also among members of the monetary union.

At the same time, to the extent that financial integration leads to a lower cost of finance, it is set to stimulate investments, especially in the countries where capital is scarce. In line with the neoclassical argument, financial market integration is therefore likely to lead, in the poorer EU countries, to both a decrease in saving and an increase in investment, and so to a deterioration of the CA balance.

Blanchard and Giavazzi ran conventional Feldstein–Horioka regressions of investment on saving, over different time periods, in the form of:

$$\left(\frac{I}{Y}\right)_{it} = a + b \left(\frac{S}{Y}\right)_{it} + \varepsilon_{it}, \quad (2)$$

where $(I/Y)_{it}$ and $(S/Y)_{it}$ are the ratios of investment and saving to GDP in country i and year t . In a closed economy, the coefficient by default would be equal to 1. Blanchard and Giavazzi found that the coefficient for the euro area countries in the period 1975–2001 was 0.35, but it especially decreased in the decade leading to the creation of the euro, being only 0.14 in 1991–2001. For OECD countries, which among themselves have a much lower level of financial integration, the coefficient was 0.58 in 1975–2001.

The sustainability of Lithuania’s CA from the intertemporal point of view has been assessed by different authors (see, e.g., Leigh, 2005; Stavrev, 2003; Bussiere et al, 2004) who have generally obtained very similar results. In this paper, I concentrate mostly on the method of analysis proposed by Leigh. Methodological notes of the model, as well as Leigh’s findings, are outlined in the next chapter.

3. Empirical assessment of Lithuania’s current account sustainability

In this chapter, I develop the empirical model to test Lithuania’s CA sustainability. As already mentioned in the previous chapter, the model with a slight variation is adapted from Leigh (2005). Using this model, I shall estimate the structural values for the CA in Lithuania since 1995 up to 2015.

According to Leigh, the key in estimating the consumption-smoothing CA is to obtain forecasts of future income, i.e. the future expected income, $E_t \Delta Z_s$, (as in equation (1)). In predicting the expected future income, the current and the lagged income growth rates can serve as good predictors, but consumers typically have more information than that

available to them. For example, the current and lagged values of the CA may well contain information regarding the future income. Indeed, equation (1) suggests that all relevant information available to consumers about the future income is contained in the CA.

Given the short time series available for Lithuania and also the structural similarity between Lithuania and the other two Baltic states, Latvia and Estonia, I estimate the model using a panel VAR and take annual data not only for Lithuania but also for the other two Baltic states for the period 1995–2012. The data on the CA and growth rates are taken from the Eurostat. In this model, I use the value of the interest rate, r , equal to 4.49% as this is the average interest rate for new loans to non-financial corporations and households in Lithuania in 2004–2013².

To predict the future income, $E_t\Delta Z_s$, we use a bivariate VAR model:

$$\begin{bmatrix} \Delta Z_t \\ CA_t \end{bmatrix} = \begin{bmatrix} \psi_{11} & \psi_{12} \\ \psi_{21} & \psi_{22} \end{bmatrix} \begin{bmatrix} \Delta Z_{t-1} \\ CA_{t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{bmatrix}, \quad (3)$$

where Z denotes income growth and CA denotes the level of CA as a percent of GDP and where parameters ψ_{ij} correspond to the VAR coefficients. In this model, I assume that the error terms, ε_{1t} and ε_{2t} , have conditional means of zero and are homoskedastic, independent and identically distributed. All variables, except the interest rate r , are expressed in levels as a percent of GDP.

Statistical software gives us the following coefficients from equation (3)³:

Stata output (panel data for Lithuania, Latvia and Estonia, 1995–2012)			
	z (lag 1)	ca (lag 1)	c
z	0.73716	0.5881	5.701
ca	-0.49423	0.30054	-2.701

where c is a constant and all coefficients are significant at the 1% significance level. These coefficients can now be used to make projections of future income, $E_t\Delta Z_s$, which can be expressed in the following matrix form:

$$E_t\Delta Z_s = [1 \quad 0] \begin{bmatrix} \hat{\psi}_{11} & \hat{\psi}_{12} \\ \hat{\psi}_{21} & \hat{\psi}_{22} \end{bmatrix} \begin{bmatrix} \Delta z_{s-1} \\ CA_{s-1} \end{bmatrix}, \quad (4)$$

where $\hat{\psi}_{ij}$ represent the estimated VAR matrix coefficients.

In order to get estimates for the CA, equal to the sum of the discounted stream of income for the indefinite future, we need to rewrite equation (1). The predicted CA, therefore, is:

$$\widehat{CA}_t = - \sum_{s=t+1}^{\infty} \left(\frac{1}{1+r} \right)^{s-t} E_t\Delta Z_s. \quad (5)$$

² Bank of Lithuania data.

³ Detailed Stata output on equation (3) can be found in Annex 1.

By substituting equation (4) into equation (5) and by adding subscript i to differentiate between the variables specific to different countries, we obtain the following form:

$$\widehat{CA}_{it} = -[1 \ 0][(1+r)^{-1}\widehat{\Phi}][I - (1+r)^{-1}\widehat{\Phi}]^{-1} \begin{bmatrix} \Delta Z_{it} \\ CA_{it} \end{bmatrix}, \quad (6)$$

where I is a (2x2) identity matrix and $\widehat{\Phi}$ represents the matrix of estimated VAR coefficients. After substituting the estimated VAR coefficients into equation (6) and using the value of r equal to 0.0449, equation (6) gives us the following result:

$$\widehat{CA}_{it} = [-0.497 \ 0.993] \begin{bmatrix} \Delta Z_{it} \\ CA_{it} \end{bmatrix}. \quad (7)$$

Results from equation (7) allow us to calculate the predicted “structural”, or “sustainable”, level of CA for Lithuania in the period from 1995 to 2012. Estimates for 2013, 2014, 2015 are calculated using the coefficients from the 1995–2012 period together with actual CA and growth rate data for 2013, and the forecasts of these variables for 2014 and 2015⁴. The results are shown in Fig. 2.

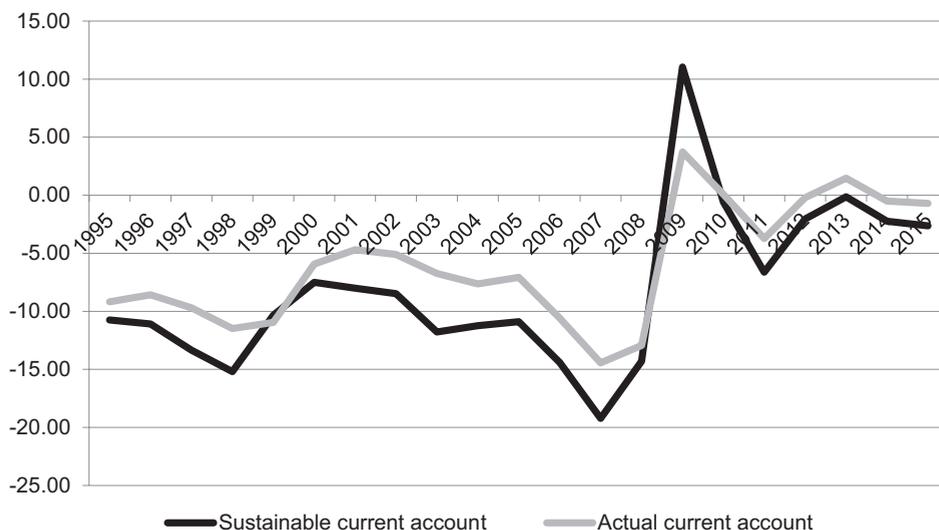


FIG. 2. Sustainable vs. actual current account in Lithuania (percent of GDP)

Source: author's calculations.

CA projections in Fig. 3 indicate that during the whole period in question the CA in Lithuania was sustainable. The only exceptions are the crisis periods – the 1999 Russian crisis when Lithuania’s GDP contracted by 1%, and the 2008–2009 crisis when

⁴ Forecasts for 2014 and 2015 are taken from the European Commission’s AMECO database.

Lithuania's GDP shrank by almost 15%. Since in this model the CA is calculated based on the projections of income and the CA, when ΔZ falls the model immediately affects the projections of CA sustainability.

Figure 3 also shows that the level of the sustainable CA in the post-crisis period has been well above the level estimated for the pre-crisis period. This has largely to do with lower growth rates as compared with the pre-crisis period. On the other hand, as already mentioned, current and lagged values of the CA also contain important information about future income. The rebalancing of the CA inevitably means the rebalancing of the financial account as well. Changes in the structure of foreign financing (discussed at length in the next chapter) are therefore, expected to contribute to the shift in the perception of the sustainable CA as well. Another important point is that the actual CA in Lithuania, according to the model, has been above the sustainable level since the economy has rebounded in 2010.

Results shown in Fig. 2 can be compared with the results obtained by Leigh (for the 1995–2005 period). Leigh also used panel data from the three Baltic states and found that Lithuania's CA was well described by the optimisation-based model and that it was sustainable in the period in question. Figure 3 demonstrates Leigh's findings graphically.

In the next chapter, I analyse in more detail the factors that were behind the persistent CA deficit in Lithuania in the years prior to the crisis. I also look into the factors that have had an effect on the rebalancing of Lithuania's CA in the post-crisis period.

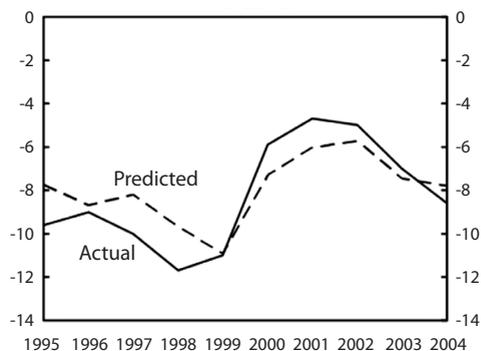


FIG. 3. Actual and predicted CA in Lithuania, 1995–2005

Source: Leigh 2005.

4. Factors behind the current account dynamics in Lithuania

After regaining independence in 1990, Lithuania took drastic steps to reorient its economy away from the markets of the former Soviet states towards Western Europe and started the process of political and economic integration with the EU. A bilateral free trade agreement with the EU was negotiated and entered into force on 1 January 1995.

To fulfil the conditions for the FTA and in view of the potential future membership in the EU, Lithuania took determined steps to adopt pro-market reforms. As in other transitional economies, there was ample room for sectoral reallocation of resources and adoption of modern technologies, creating a huge potential for gains in total factor productivity. Moreover, per capita income in Lithuania being among the lowest among the

CEE countries, coupled with a comparatively well-qualified labour force and the need for major restructuring after transition, led to high returns on investment and sustained capital accumulation (Deroose et al., 2010).

Lithuania pegged its currency, the litas, early on in its transition period: in 1994 the litas was pegged to the dollar, and in 2002 the peg was switched to the euro. Overall, the swift orientation towards the EU market, the process of political and economic integration with the EU, successful transition period reforms and the stabilisation of the currency – all led to rapid financial flows to Lithuania, which came mainly in the form of FDI and inter-bank loans.

Just as the neoclassical theory would predict, the countries like Lithuania and the other Baltic states, which opened up to investments and trade with the richer EU neighbours, saw their income to rise fast and gradually converge with the EU level. In the case of Lithuania, since 1995, the real GDP per capita has grown from 30.6% of the EU15 average to 68.2% in 2013.

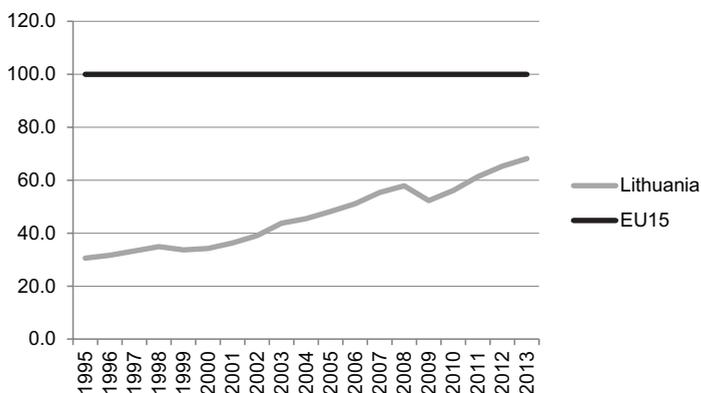


FIG. 4. Lithuania's real GDP per capita as percent of EU15 GDP

Source: the AMECO database.

As shown in Fig. 1, Lithuania ran a consistent CA deficit since 1995, and the CA did not turn into a surplus until the crisis of 2008–2009. Figure 5 shows the sources of financing of the CA from 2001 to 2013.

As could be expected, FDI was the less volatile component of the financial inflows. The accumulated FDI in the 2001–2013 period was €7.7 billion and was positive during the whole period, except at the height of the crisis in 2009 when the FDI flows turned negative and accounted for a net outflow of €151 million.

Portfolio investment, on the other hand, did not constitute a major source of financial inflows to Lithuania in the pre-crisis period. Portfolio investment rose only in the aftermath of the crisis due to the significantly higher government borrowing (in the form of government bonds) from the international financial markets.

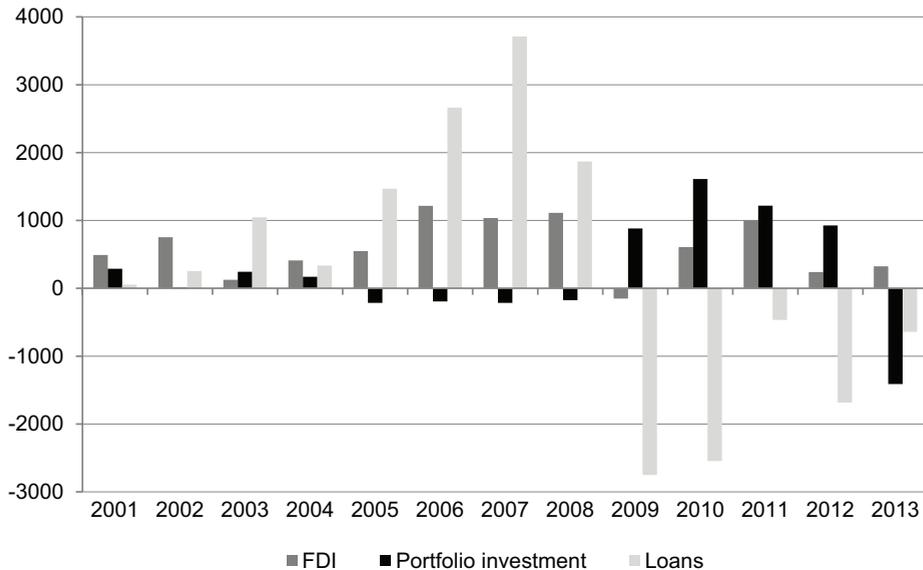


FIG. 5. Sources of financing the current account (million euro)

Source: the Bank of Lithuania.

The majority of the flows during the period came from loans (mainly inter-bank ones). The peak of the bank loans from abroad was in 2006 and 2007, exactly when the CA deficit was highest. The principal reason behind the large financial inflows into Lithuanian banks in the form of inter-bank loans was their ownership structure. The banking sector in Lithuania since late 1990s and early 2000s has been dominated by five Scandinavian banks (SEB, Swedbank, DnB Nord, Nordea, and Danske Bank) which take up around 90% of the market (in terms of assets). The major source of the inter-bank loans to Lithuania during the pre-crisis period were parent institutions of these Scandinavian-owned banks, particularly the Swedish ones, which accounted for the majority of capital inflows (Baker, Klingen, 2013b).

Lithuania was not an exception in the wider CEE region but rather one of the prime examples of the western/northern European banks expanding into the new member states of the EU. While the source of investments in the financial sector of the CEE countries differed (largely as a direct result of geography), the common trend was that the financing of these economies took place via the direct establishment of branches or subsidiaries of foreign (EU) banks, and banks expanded their presence in what was perceived to become a single, large financial market in the future. This increasingly created the perception among foreign banks that CEE markets were ‘home markets’ (Smaghi, 2007).

The disappearance of restrictions on capital movement from (and to) other EU countries and the perceived security of investments into another EU country were the main

drivers of the expansion of capital flows to Lithuania. Moreover, financial integration led to a rapid financial deepening and to a sizeable drop in the risk premium (Deroose et al., 2010). There are studies analysing the link between rapid capital inflows and declining risk premia in the CEE countries. For example, Luengnaruemitchai and Schadler (2007) have estimated that in general the new EU member states since 2003 had a steady 50–100 basis point advantage relative to other emerging markets with comparable fundamentals. A study by Lendvai and Roeger (2010) from the European Commission’s ECFIN point to a 100 basis point permanent decrease in UIP-based risk premium since 2001 in CEE countries.

Falling risk premia gradually led to a rapid convergence of domestic interest rates to the euro area levels. Since the accession to the EU in 2004 until 2008, the nominal long-term borrowing rate in Lithuania averaged to 4.48%, while the average rate in the EU15 countries was 4.11%⁵. What is more striking is the level of the long-term *real* interest rate. As one can see in Fig. 6, upon joining the EU, the real long-term borrowing rate in Lithuania fell down dramatically from 6.23% in 2003 to negative levels by the end of 2004. This fact was caused not only by decreasing nominal rates, but also by the rapidly rising inflation which was not countered by higher borrowing rates. Negative interest rates fuelled the housing bubble and contributed to the overheating of the economy. Estimates by the European Commission show that the gap between the actual and potential GDP in Lithuania was at around 10% in 2006, 2007 and 2008⁶.

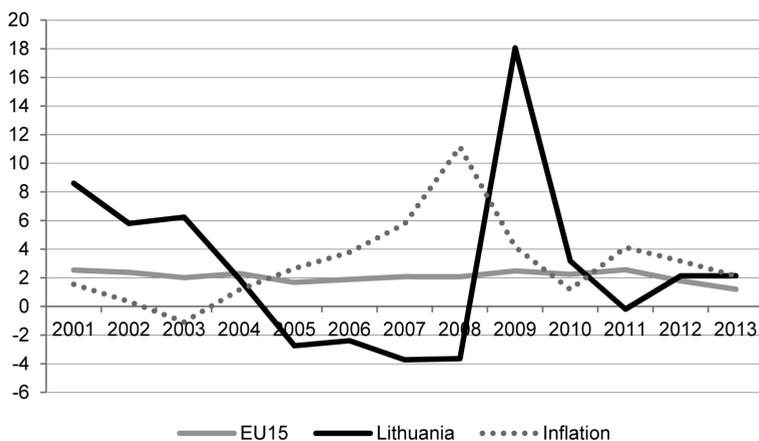


FIG. 6. Real long-term interest rates in Lithuania and EU15 (percent)

Source: IMF and AMECO database.

⁵ Data taken from the AMECO database. The rate is calculated as a weighted average of public and private bonds over 5 to 10 years.

⁶ See Deroose et al. (2010).

Higher growth prospects and the availability of funds to finance the rising consumption and investment needs also translated into a widening gap between saving and investment. As shown in Fig. 7, the gap widened significantly in the mid 2000s and peaked in 2007, thus exerting a downward pressure on the CA. The mirror image between the CA and investment is explained by the steady rate of saving in the economy, even during the crisis.

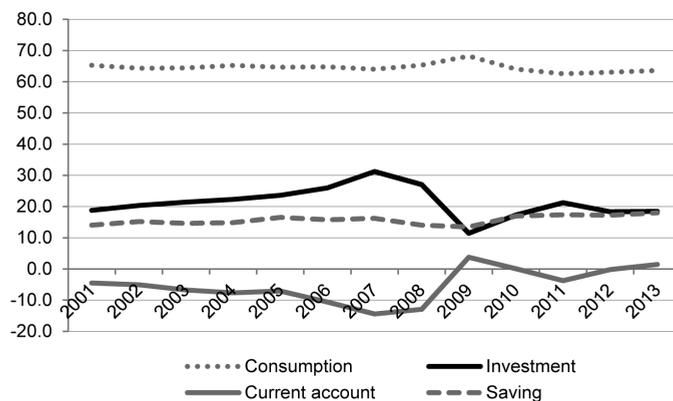


FIG. 7. Components of the GDP (percent)

Source: Statistics Lithuania.

Figure 7 graphically illustrates the point that fluctuations in the CA were caused mainly by the changing rate of investment in Lithuania over the years since 2000. Consumption in terms of GDP has been relatively stable over the period, averaging to 64.7% and jumping slightly to 68.2% in 2009 because of a sudden fall in Lithuania’s GDP. The steady rate of consumption and saving during the period suggests that financial inflows were primarily channelled to satisfy the higher demand for capital formation rather than consumption (as in $S = I + NX$). On the other hand, in line with the intertemporal approach, we can say that foreign savings were used to ‘smooth the consumption’, since a higher demand for investment was not matched by a corresponding increase in the saving rate and thus no decrease in consumption.

Why did the economy rebalance after the crisis?

The pre-crisis and the post-crisis periods paint a very different picture in terms of the balance of payments situation in Lithuania. If before the crisis the Lithuanian economy had experienced massive capital inflows, negative real interest rates, soaring investment rates and overheating economy, the post-crisis period saw the reversal, or in some respects a rebalancing, of these trends.

The most striking feature of Lithuania’s post-crisis balance of payments has been the massive outflows of capital. We saw already from Fig. 4 that capital, in the form of

inter-bank loans, has been flowing out of Lithuania since 2009. During the five post-crisis years (2009–2013), loans and other inter-bank credit arrangements experienced an accumulated net outflow of €8.1 billion. To compare, the same category of capital flows in the five years before the crisis (2004–2008) saw an accumulated net inflow of €10.0 billion.

As indicated in the previous section, credit expansion in Lithuania in the pre-crisis period was fuelled largely by foreign savings. As these dried out, so did credit expansion. Domestic credit in Lithuania was at its peak in October 2008 (at €21.1 billion) and has been on the decline ever since (Fig. 8a). Figure 8b shows the dynamics of the level of domestic credit expressed in terms of GDP.

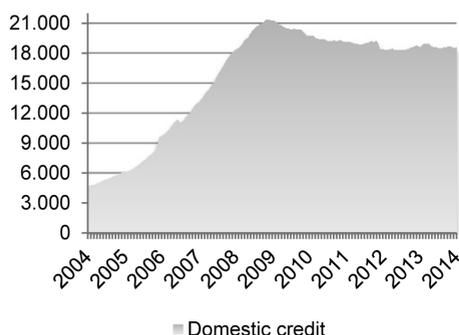


FIG. 8A. Domestic credit (million euro)

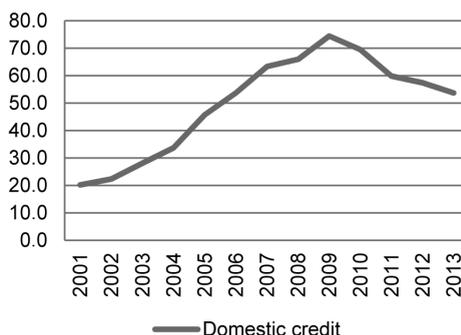


FIG. 8B. Domestic credit (percent of GDP, at the end of period)

Source: Bank of Lithuania.

As in the case of massive capital inflows to the CEE countries before the crisis, the flight of capital was a regional trend in the post-crisis period as well. Since 2008–2009, virtually all countries in the wider CEE (or sometimes referred to as the CESEE (Central Eastern and South Eastern Europe)) region have witnessed the trend of a sharp fall in foreign financing, which was the result of local branches or subsidiaries of foreign-owned banks sending capital back to the parent institutions. The capital flight from the CESEE region took place in several stages.

In the immediate aftermath of the crisis, foreign financing virtually froze up due to the almost universal increase in the perception of credit risk. As the global credit crunch started, the concern in the CESEE region was that Western banks would “cut and run” from their engagement in the East in an uncoordinated rush to the exit (Bakker, Klingens, 2012). To avert such scenario, the international community made large-scale funding available, mainly through the IMF and the EU. Home and host country authorities and key cross-border banks joined forces to set up the so-called Vienna Initiative ‘to secure adequate capital and liquidity support by Western banking groups for their affiliates in the CESEE region’⁷.

⁷ Vienna Initiative 2.0 Mission Statement – <http://vienna-initiative.com/wp-content/uploads/2012/08/Vienna-Initiative-2.0-Mission-Statement.pdf>.

Even if an outright ‘capital run’ was averted in the region in the first months of the crisis, foreign-owned banks quickly moved on to engage in an across-the-region process of *deleveraging* (see, e.g., Allen, 2012; Bakker, Klingen, 2013; Fitzgeorge-Parker, 2012; Purfield Rosenberg, 2010; Simor, 2012). Although there are differences in terms of how deleveraging played out in the different countries, all of them saw a consistent decrease on the asset side of the balance sheets of the foreign-owned banks – a result of the repatriation of funds from the host countries back to the home countries. Figures 9a and 9b show the extent of this process across the region and reveal differences among the countries. One can see that the countries with the largest share of lent foreign capital, such as the Baltic states, saw the sharpest contraction in foreign bank financing, expressed as a percent of the host country’s GDP (funding decreasing from 88% to 47% of GDP in Estonia, from 72% to 45% in Latvia, and from 48% to 29% in Lithuania).

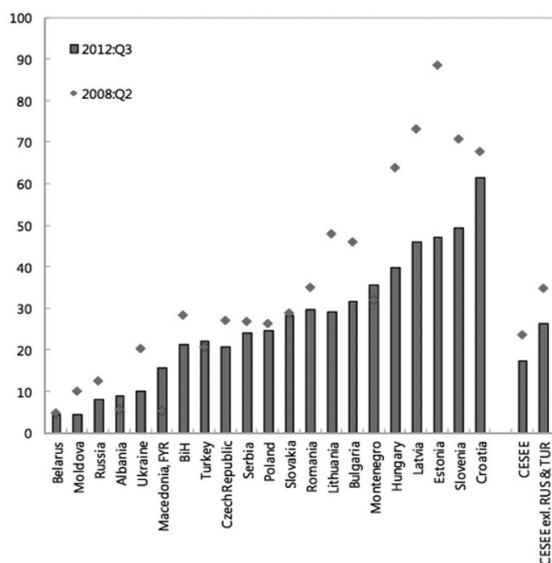


FIG. 9A. External positions of foreign banks in CESEE countries (percent of GDP)

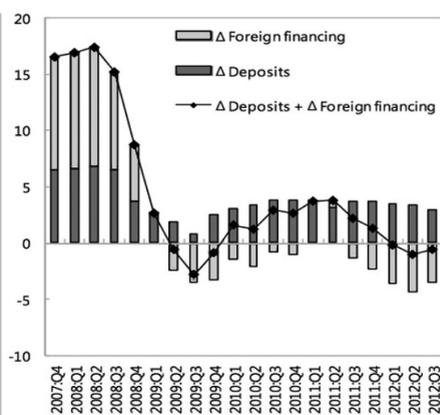


FIG. 9B. Evolution of bank funding in CESEE countries, excl. Russia and Turkey (percent of GDP)

Source: CESEE Deleveraging Monitor (2013).

Figure 9b demonstrates that foreign financing in CESEE turned negative in the first half of 2009 and eased somewhat only in the first half of 2011. The same trend, although with a lag of up to two quarters, is seen in the case of Lithuania as well. External loan financing, although decreasing sharply since the end of 2008, experienced a brief revival in the second half of 2011 (Fig. 10b). The same trend is also reflected in the temporary increase in domestic credit (Fig. 8a) as well as the loan-to-deposit ratio (Fig. 10a). The loan-to-deposit ratio, a useful indicator of reliance on external funding, has been steadily

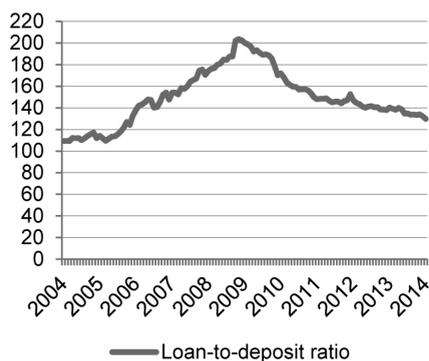


FIG. 10A. Loan-to-deposit ratio in Lithuania (percent, from Jan 2004 to Jan 2014)

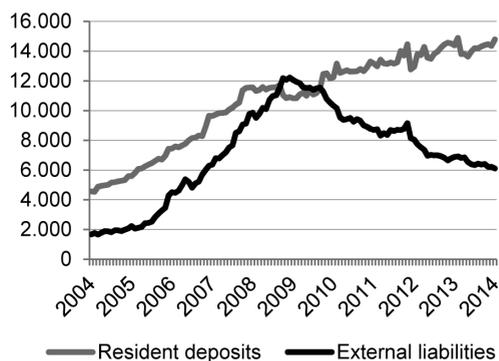


FIG. 10B. Outstanding liabilities of financial institutions in Lithuania (million euro, Jan 2004 to Jan 2014)

Source: Bank of Lithuania.

declining in Lithuania since the peak of 204% reached in November 2008 (the ratio was already 130% in January 2014).

Due to the intensification of the euro crisis in the second half of 2011, wholesale funding markets virtually came to a halt again. This accelerated the deleveraging process in 2012 (Simor, 2012). To manage this process, in January 2012 the Vienna Initiative was revived again (this time being dubbed – the Vienna Initiative 2.0) to guard ‘against disorderly deleveraging’ recognising that ‘sudden, large-scale withdrawals of financing would imperil macroeconomic performance and financial stability in CESEE’⁸.

The emphasis on the financing side in this analysis suggests that the rebalancing of the CA in Lithuania and other CESEE countries (particularly in the Baltic states) was a result of the supply-side rather than of the demand-side factors. Few in the academic circles are in dispute that a sharp fall in the GDP in the region contributed to the *initial* capital flight. However, capital withdrawals continued even when the growth in the region picked up and has been the dominant trend ever since the end of 2008 (except for a brief period in 2011). According to Bakker and Klingen (2013), as we got further away from the crisis, the relevance of GDP for credit expansion diminished, while the relevance of supply factors such as bank solvency, asset quality, and the loan-to-deposit ratio increased, and banks with a poorer asset quality, lower equity-to-net-loans ratios, or higher loan-to-deposit ratios extended less credit than banks with stronger fundamentals⁹.

The general strategy of banks in the region (although this was not limited only to CESEE) was to increase reliance on domestic savings rather than on foreign financing (see, e.g., BIS, 2010; Mucci et al., 2013). Bakker and Klingen (2013) call this a shift from a

⁸ Vienna Initiative 2.0 Mission Statement.

⁹ Bakker and Klingen (2013) provide a formal analysis of the specific factors, such as macroeconomic conditions, fundamentals in the parent banks and the subsidiaries, that contributed to the credit growth slowdown in the CESEE.

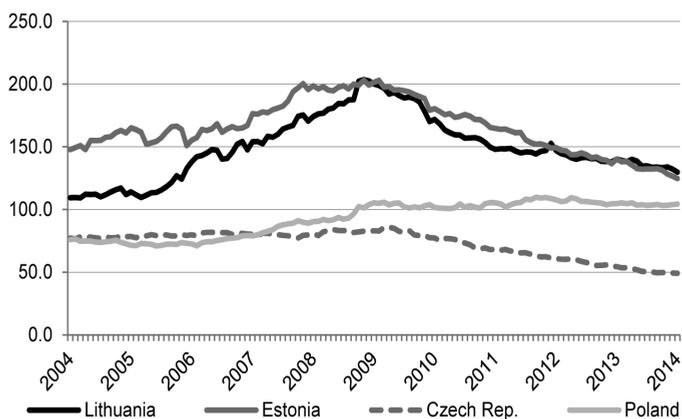


FIGURE 11. Loan-to-deposit ratios in selected countries

Sources: Bank of Lithuania, Bank of Estonia, National Bank of Poland, Czech National Bank

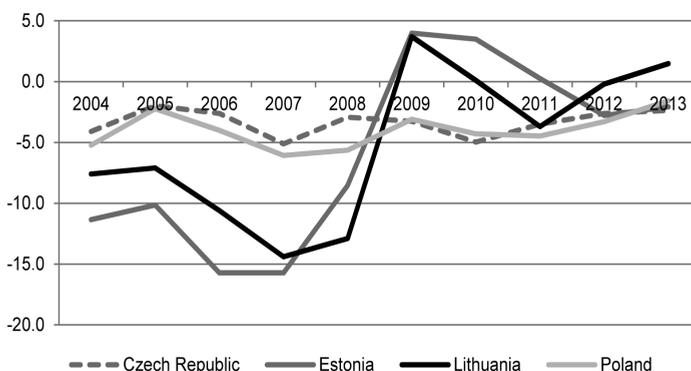


FIG. 12. Current account in selected countries (percent of GDP)

Source: AMECO database.

‘centralised’ funding model, whereby liquidity is obtained through the parent bank and distributed throughout the rest of the banking group, towards a ‘decentralised’ model in which subsidiaries are much more self-reliant in terms of funding.

Despite this being a general trend in the CESEE region, in some countries foreign funding withdrawals were particularly acute. We saw in Fig. 9a that the Baltic states experienced the highest funding contractions by foreign-owned banks, while in other countries, like Poland and the Czech Republic, the change was much smaller. The lower levels of foreign financing are well reflected in the loan-to-deposit ratios which are displayed in Fig. 11.

Differences in the loan-to-deposit ratios in Lithuania, Estonia, the Czech Republic and Poland, on the other hand, are well reflected in the level of CA in these countries (Fig. 12). This is not surprising, as the CA reflects the net foreign asset accumulation. Figures 11 and 12 indicate that the countries with the sharpest declines in loan-to-deposit

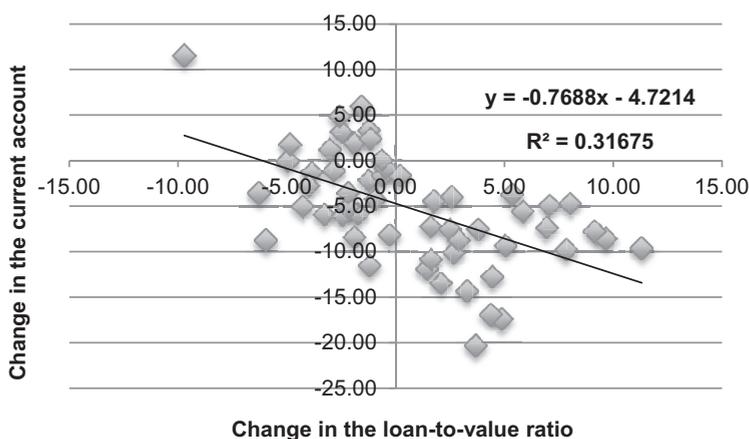


FIG. 13. Correlation of the change in the loan-to-deposit ratio with the change in the current account in Lithuania

Source: Bank of Lithuania.

ratios (Estonia and Lithuania) also experienced the greatest adjustment of the CA. On the other hand, the CA did not undergo a major rebalancing in the countries where loan-to-deposit ratios were more stable (the Czech Republic and Poland).

In fact, regressing quarterly data for Lithuania (from 2000Q1 to 2013Q4) of the percentage change in the loan-to-deposit ratio on the percentage change in the CA shows a strong correlation (statistically significant at the 1% level). The change in the loan-to-deposit ratio explains 76% of the variation in Lithuania's CA. This interpretation is consistent with the data we saw presented in Fig. 4, i.e. that foreign loan funding (presented in Fig. 13 by the loan-to-deposit proxy) was the most volatile component of capital flows in and out of Lithuania. In other words, reductions in foreign loan funding appear to be the most significant factor behind the rebalancing of the CA in Lithuania in the post-crisis period.

Finally, Lithuanian banks themselves have provided useful insight on whether it was the demand or the supply factors that drove capital out of Lithuania. The Bank of Lithuania every six months conducts a *Bank Lending Survey* asking bank managers a set of questions about, on the one hand, how demand for loans (both from corporations and households and including both short-term and long-term loans) has changed in their bank over the last six months and, on the other hand, how lending conditions in their bank have changed¹⁰.

Results of the survey are reflected in Fig. 14, which shows that banks started toughening credit conditions already back in 2007. A more detailed analysis of the *Bank Lending*

¹⁰ To calculate the index, bank representatives are asked to indicate how demand for loans in their banks has changed over the last six months (in the scale from -100 to 0 if it decreased and from 0 to 100 if it increased). Banks are also asked to indicate whether the conditions for issuing loans in their banks have become stricter or looser over the same period (indicating from -100 to 0 if the conditions became looser and from 0 to 100 if they became stricter). For the purpose of visual comparison, I have inverted the 'supply' curve. As a result, the range from -100 to 0 in graph 11 indicates stricter conditions for issuing loans, while the range from 0 to 100 indicates looser conditions.

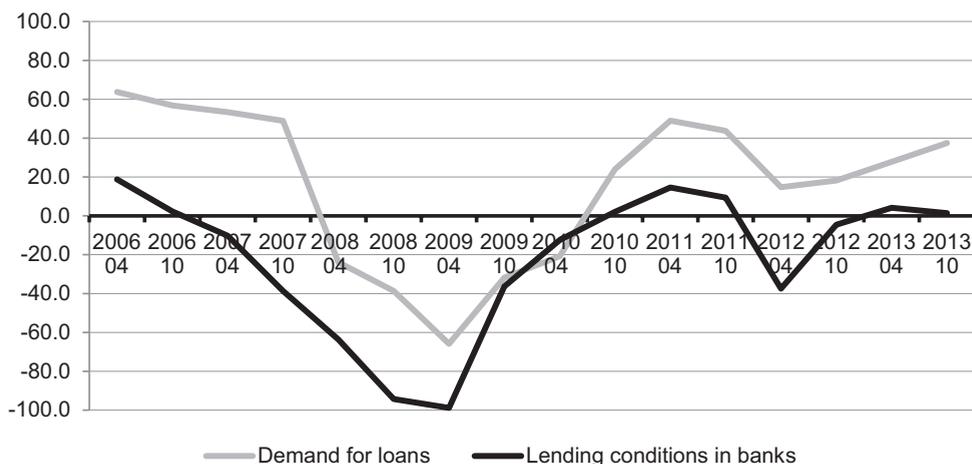


FIG. 14. Dynamics of credit demand and supply in Lithuania

Source: Bank of Lithuania.

Survey reveals that when banks were inclined to constrain lending, they did so in every aspect: increasing bank margins and non-interest rate charges, decreasing loan size and maturity, as well as strengthening requirements for collateral. When the crisis erupted at the end of 2008, bank lending virtually came to a halt (the index in Fig. 14 reaching -100). Lending restrictions were later gradually loosened and peaked in 2011 (in line with the trend discussed earlier). Not surprisingly, this translated into a significant fall in the level of CA and an increase in the investment rate in Lithuania in 2011 (remember Fig. 1 and 6). Lending conditions deteriorated with the escalation of the euro crisis at the end of 2011, but they stabilised by the end of 2012¹¹.

The figure reveals that the demand for loans also experienced a sharp decrease which started even before the crisis, i.e. when the perception of the overheating of the Lithuanian economy became widespread. The fall in demand for credits started as early as the beginning of 2008 and continued until mid-2010. However, since mid-2010, there has been a clear gap, as reported by banks themselves, between the demand for loans and the readiness of the banks to meet this demand.

This consistent gap since mid-2010 between the demand and supply for loans corresponds to the gap between the actual and the sustainable CA suggested by the empirical model in Chapter 3. The model, depicted graphically in Fig. 2, indicates the perception of agents in the economy that the accumulated future growth allows for a higher borrowing from abroad today. Figures 3 and 10, therefore, point to the same discrepancy between the demand for foreign financing and the lack of adequate supply of foreign funds to meet this demand.

¹¹ A more detailed analysis of both the demand and the supply factors can be found on the website of the Bank of Lithuania – http://www.lb.lt/bank_lending_survey_2.

5. Conclusions

In this paper, I have analysed the dynamics of the CA in Lithuania in two different periods – the period in the run up to the 2008–2009 financial crisis and the period since the crisis. Using an empirical model based on the intertemporal optimisation approach, I have found that Lithuania’s CA has been sustainable since 1995, except for two brief periods – the 1999 Russian crisis and in 2009 when Lithuania’s economy contracted by more than 15% due to the global financial crisis.

Wide CA deficits in the pre-crisis years, which were brought about by large inflows of foreign capital, mainly in the form of inter-bank loans, are shown to have been sustainable by the model. The positive assessment of sustainability is explained by: a) the intertemporal optimisation approach, which suggests that economies are expected to borrow from abroad and run large CA deficits if agents in the economy expect the future growth rates to be high enough to keep the negative external asset accumulation under control; b) the concept of real convergence, which in the case of Lithuania has implied a large catching-up potential with the richer Western European neighbours in terms of income level.

While FDI and portfolio investment have remained on average positive since 2008–2009, the reversal of foreign financing in the form of inter-bank loans has been the main factor behind the rebalancing of the CA in the post-crisis period. The process of *deleveraging* has not been Lithuania-specific but affected the other countries in the CEE region as well. However, being among the most ‘externally leveraged’ countries in the region, Lithuania has been subject to one of the most severe credit contractions in the CEE.

The lower levels of foreign financing, coupled with the slowdown in income growth after the crisis, have likewise affected the expectations of agents in the economy. This has caused the level of sustainable CA to shift upwards. The empirical model, however, still points to a gap between the sustainable and the actual CA in Lithuania. This gap is also evident from the analysis of credit demand and supply as reported by banks themselves. In other words, there is evidence that foreign-owned banks have been unable to meet the domestic demand for credit. Considering the characteristics of Lithuania’s economy today, namely the catching-up potential, the relative scarcity of capital as compared with the western European countries, and the expectations about future growth rates, the analysis presented in this paper suggests that the current level of the CA in Lithuania is not optimal from the intertemporal point of view.

REFERENCES

- Allen, M. (2012). Central and Eastern Europe facing deleveraging. Presentation at the Emerging Europe Winter Conference, Kitzbühel, January 12, 2012.
- Bakker, B., Klingens, C. (eds.). (2012). How Emerging Europe Came through the 2008-09 Crisis – an Account by the Staff of the IMF’s European Department. Washington: International Monetary Fund.

Baker, B., Klingen, C. (eds.). (2013a). Financing Future Growth: the Evolving Role of Banking Systems in CESEE. International Monetary Fund, Central, Eastern and Southeastern Europe—Regional Economic Issues, April 2013.

Baker, B., Klingen, C. (eds.). (2013b). Financing Future Growth: the Evolving Role of Banking Systems in CESEE: Technical Notes. International Monetary Fund, Central, Eastern and Southeastern Europe—Regional Economic Issues, April 2013.

BIS (Bank for International Settlements) (2010). Funding Patterns and Liquidity Management of Internationally Active Banks. CGFS Paper 39, May 2010.

Blanchard, O., Giavazzi, F. (2002). Current account deficits in the Euro area: the end of the Feldstein–Horioka Puzzle? MIT Department of Economics, Working Paper No. 03-05.

Bussiere, M., Fratzscher, M., Muller, G. (2004). Current account dynamics in OECD and EU acceding countries – an Intertemporal Approach. ECB Working Paper No. 311.

CESEE Deleveraging Monitor, Q3 2012, The Vienna Initiative, 24 January 2013.

Deroose, S., Flores, E., Giudice, G., Turrini, A. (2010). The tale of the Baltics: experiences, challenges ahead and main lessons. ECFIN Economic Brief – Issue 10, European Commission.

Fitzgeorge-Parker, L. (2012). The CEE Deleveraging Conundrum. *Euromoney*, September 2012.

Gros, D. (2012). How to deal with macroeconomic imbalances. CEPS Special Report No. 69.

Herrmann, S., Jochem, A. (2005). Determinants of current account developments in the Central and Eastern EU member states – consequences for the enlargement of the Euro area. Deutsche Bundesbank, Discussion Paper No. 32/2005.

Iancu, A. (2009). Real convergence and integration. National Institute of Economic Research (Romania), Working Paper No. 090102.

Lendvai, J., Roeger, W. (2010). External deficits in the Baltics 1995–2007: Catching up or imbalances? DG ECFIN, European Commission, Economic Papers 398.

Luengnaruemitchai, P., Schadler, S. (2007). Do economists' and financial markets' perspectives on the new members of the EU differ? IMF Working Paper 07/65.

Leigh, D. (2005). Current Account Sustainability. Republic of Lithuania: Selected Issues, IMF Country Report 05/122.

Lucas, R. (1990). Why doesn't capital flow from rich to poor countries? *American Economic Review*, 80: 2.

Mucci, F., Gourov, F., Kolesnichenko, A. (2013). Banking sector trends in CEE and Turkey. Banking in Central and Eastern Europe and Turkey. Luxembourg: European Investment Bank.

Obstfeld, M., Rogoff, K. (1994). The intertemporal approach to the current account. NBER Working Paper No. 4893.

Obstfeld, M., Rogoff, K. (1996). *Foundations of International Macroeconomics*. The MIT Press.

Obstfeld, M., Rogoff, K. (2000). The six major puzzles in international macroeconomics: Is there a common cause? In: Bernanke, B., Rogoff, K., *NBER Macroeconomics Annual 2000*. The MIT Press, p. 339–390

Purfield, C., Rosenberg, C. (2010). Adjustment under a currency peg: Estonia, Latvia and Lithuania during the global financial crisis 2008–2009. IMF Working Paper WP/10/213.

Rodzko, R. (2005). Assessment of the current account sustainability in Lithuania. Bank of Lithuania (original in Lithuanian “Lietuvos einamosios sąskaitos deficito priimtino vertinimas”).

Sachs, J. (1981). The current account and macroeconomic adjustment in the 1970s. *Brookings Papers on Economic Activity*, No. 1, p. 201–282.

Simor, A. (2012). The EU Bank deleveraging process from a CEE perspective. Presentation at the joint conference by G20, EBRD and the Reinventing Bretton Woods Committee. London, 17 May 2012.

Smaghi, L. B. (2007). Real Convergence in Central, Eastern and South-Eastern Europe. Speech at an ECB conference, Frankfurt, 1 October 2007.

Stavrev, E. (2003). Current account sustainability in the Baltic countries. Republic of Estonia: Selected Issues, IMF Country Report No. 03/331.

ANNEX 1. Stata output on equation (3)

. xtreg z l1.z l1.ca

```

Random-effects GLS regression           Number of obs   =       51
Group variable: cc                     Number of groups =        3

R-sq:  within = 0.3567                 Obs per group:  min =       17
        between = 0.4095                 avg =           17.0
        overall = 0.3556                 max =           17

                                           Wald chi2(2)    =       26.48
corr(u_i, X) = 0 (assumed)             Prob > chi2     =       0.0000
    
```

	z	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
	z					
	l1.	.7371634	.1462023	5.04	0.000	.4506121 1.023715
	ca					
	l1.	.5881071	.1498331	3.93	0.000	.2944395 .8817746
	_cons	5.700986	1.130104	5.04	0.000	3.486022 7.915949
	sigma_u	0				
	sigma_e	5.2314933				
	rho	0	(fraction of variance due to u_i)			

```

Random-effects GLS regression           Number of obs   =       51
Group variable: cc                     Number of groups =        3

R-sq:  within = 0.5242                 Obs per group:  min =       17
        between = 0.1899                 avg =           17.0
        overall = 0.5213                 max =           17

                                           Wald chi2(2)    =       52.27
corr(u_i, X) = 0 (assumed)             Prob > chi2     =       0.0000
    
```

	ca	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
	z					
	l1.	-.4942336	.1255387	-3.94	0.000	-.7402849 -.2481823
	ca					
	l1.	.3005481	.1286563	2.34	0.019	.0483863 .5527099
	_cons	-2.701345	.9703801	-2.78	0.005	-4.603255 -.7994347
	sigma_u	0				
	sigma_e	4.4744559				
	rho	0	(fraction of variance due to u_i)			