

Gergely Fábián, András Hudecz and Gábor Szigel: Decline in corporate lending in Hungary and across the Central and East European region during the crisis*

Escalation of the global financial crisis in autumn 2008 ended the economic boom financed by external funds and accompanied by dynamic expansion in credit in the Central and East European region. During the recession, corporate loan portfolios started to decline in nearly all countries in the region. The question arises as to what role banks played in this process: by restraining their credit supply, did they contribute to the deepening of the economic recession and to a slower-than-necessary recovery, or has the contraction in corporate lending resulted from shrinking corporate credit demand caused by the recession? The question is of particular relevance to Hungary, which recorded the steepest decline in corporate lending in the region. In this article, we look at 9 countries¹ in Central and Eastern Europe and the Baltic States to provide a comparative presentation of developments in corporate lending and interest rates across the region and explore the reasons behind the differences observed. Available information appears to support the assumption that in Hungary – as well as in the Baltic States – the tightening of credit supply may have contributed more to the decline in corporate lending than in other countries of the region. This can be attributed primarily to Hungary’s reliance on external funds and vulnerability. At the same time, these results should be interpreted with the utmost caution for a variety of reasons. On the one hand, caution is called for because of the weakness of the analytical framework applied, as well as due to the limited reliability of the underlying data in certain cases. On the other hand, the CEE region is far from homogeneous: the economic structure and development path of individual countries reveal more differences than similarities, rendering the comparison of certain aspects of the developments rather difficult.

THEORETICAL INTRODUCTION: PECULIARITIES OF CREDIT MARKET ANALYSIS

Before turning to corporate lending developments in the CEE region, it is important to describe certain peculiarities of the credit markets, which make analysis of credit market processes and their effects on the real economy rather complicated. The main problem in the credit market is that prices cannot always fulfil their market clearing function, and thus supply and demand effects are extremely difficult to distinguish.

The role of prices and non-price credit conditions

According to the traditional competitive market approach, price plays a vital role in the functioning of the market as a whole. In a normal competitive market, the quantity demanded and the quantity supplied reach an equilibrium through price adjustment; therefore, price typically contains all relevant information based on which consumers and

producers can make decision. This does not necessarily hold true to the credit market. The (effective) interest rate on a loan is typically considered as the price of a loan. However, while in the classical case buyers intend to buy exactly the same amount of products at a given market price as the suppliers wish to sell (and vice versa), this is not necessarily the case in the credit market. Indeed, in our analysis of “corporate loans” we are forced to look at a “corporate loan” as though it were a homogenous product. In point of fact, however, corporate loans are rather heterogeneous products; with a slight exaggeration one might say that no two loans are exactly the same, as no two companies are exactly the same either. Just like analysts, risk managers at banks also face the difficult task of distinguishing these products from one another, and they only succeed to a limited degree. Therefore, banks are not in a position to behave as “normal” sellers; they cannot extend a loan to anyone who is willing to pay the relevant interest rate, because that would be tantamount to offering two, potentially fundamentally different products at the same price. Vice-versa, this implies that, upon determining their

* The views expressed in this article are those of the author(s) and do not necessarily reflect the official view of the Magyar Nemzeti Bank.

¹ Bulgaria, Czech Republic, Estonia, Poland, Latvia, Lithuania, Hungary, Romania, Slovakia.

credit supply, banks take into consideration factors other than prices as well.² As a result, a future debtor must also comply with additional, *non-price* credit conditions as well (e.g. providing collateral for the loan; demonstrating a certain level of regular income or revenues, etc.). Banks impose non-price conditions in the course of the debtor classification process – known as ‘rating’ for corporate loans – conducted prior to granting a loan. They examine the information available on the firm as well as its finances; they assess the probability of its becoming insolvent and decide whether to provide credit and if so, under what conditions (in terms of collateral and other factors), and at what price. Consequently, analysis of these credit aggregates which are composed of heterogeneous products reveals that, while certain businesses or customers are willing to borrow at a specific (average) interest rate level, banks may still decide not to grant loans: hence, the observed interest rate is not necessarily identical to the market-clearing price. Thus, if banks wish to reduce their credit supply they have other means at their disposal, in addition to tightening interest rates; indeed, beyond a certain point raising their rates is not even in their interest. This is because investing firms must resort to riskier projects to raise the funds required to cover the increased borrowing costs, and consequently, higher interest rates would eventually increase the ratio of less creditworthy, riskier customers in the bank’s portfolio. Therefore, banks will not raise their interest rates beyond a certain level, but rather start tightening their non-price credit conditions instead (this phenomenon is referred to as credit rationing in the literature; for further details see Stiglitz–Weiss, 1981).

As a consequence, changes in interest rates cannot be clearly attributed to a decline in supply or a decline in demand. While a classical negative supply shock – a steep decline in supply – will inevitably generate a price increase for the relevant product in a normal market, it can trigger any kind of shift in the interest rates of the credit market. Conceivably, 1) interest rates may increase while non-price credit conditions remain unchanged or tighten; or 2) interest rates remain unchanged and only the credit conditions tighten (banks restrain their credit supply by offering the loan at the same price but only to selected customers – the “flight to quality” phenomenon, see Bernanke et al., 1996); or, in more extreme cases, observed interest rates may in fact decline, while credit conditions are severely tightened (banks extend loans – rather cheaply – only to customers with the best credit rating). Whichever may be the case, access to loans, which is broadly determined by price and non-price conditions, will be more

restricted than earlier. The consequence of this is that an analysis should consider both interest rate statistics and the credit conditions imposed by banks.

Credit supply

Banks may tighten non-price credit conditions for a variety of reasons. The lending surveys conducted by central banks usually cite two groups of reasons for tightening: lending ability and willingness to lend; in other words, how much banks can lend and how much they want to lend. As the majority of credit institutions in the Central and Eastern European region are in foreign ownership and often obtain funding through their parent banks, two additional factors are added to those described above; namely the parent banks’ lending ability and their willingness to lend. According to the empirical evidence presented by De Haas–Van Lelyveld (2008), the allocation of resources to subsidiaries in international bank groups is also based on the specific country’s status relative to the market of other subsidiary countries and the parent bank. For our purposes this implies that parent banks’ willingness to lend is not only determined by the developments taking place in a specific country, but also by changes in its relative status to other markets.

A bank’s lending ability can depend on three factors: the banks’ capital position, access to market finance and liquidity constraints. These are generally interrelated: indeed, if a bank is unable to raise sufficient capital from the market to sustain its lending activity, there are reasonable grounds to assume that it also has limited access to market finance. However, the above constraints may also arise separately: a bank might be well capitalised – owing to the high profitability it has enjoyed in recent years, for instance – but may still face a shortage of funds, or certain liquidity tensions may impede its ability to lend even in case of sufficient capital adequacy and funding.³

A bank’s willingness to lend is a more subjective element, which we believe reflects the bank’s risk appetite, and may be basically associated with certain portfolio segments (indeed, if a bank reduces its lending to a certain clientele, *ceteris paribus*, it should register growth in other instruments). Thus, as it relates to corporate lending, willingness to lend implies that even if sufficient funds are available, a bank will make a decision as to which customers it prefers to finance: companies or other clients. Banks’ willingness to lend combines profitability and risk

² We may view this as an attempt on the banks’ part to break down the aggregate credit market into more homogenous market segments aligned around non-price credit conditions.

³ For example, the foreign currency liquidity problems arising from the swap market freeze-up observed after October 2008 deteriorated Hungarian banks’ ability to lend in foreign currency.

considerations: most of the time, higher profitability may not be achieved without higher exposure, and a worsening of either of these two factors, *ceteris paribus*, will translate into a decline in willingness to lend. In a recessionary environment the economic indicators of firms applying for bank loans deteriorate in general, which means that less firms will be granted a loan even if the loan approval conditions remain the same (this is also known as the corporate balance sheet channel of supply adjustment). If it is combined with a decline in banks' risk appetite, banks may even tighten their previous non-price conditions, whereby access to loans will be limited to clients whose creditworthiness is better than that of previous clients (this is also known as the bank lending channel). It is a generally accepted phenomenon that in times of economic recession banks, owing to their pro-cyclical behaviour, reduce their willingness to lend; however, it is very hard to define exactly what influences the extent of this reduction and when, as it largely depends on the – subjective – expectations and judgement of banks' policy-makers. According to the empirically verified “institutional memory” hypothesis set up by Berger–Udell (2003), experiences relating to losses sustained may influence banks' willingness to lend: the more vivid their memories of such losses are, the less inclined to extend loans banks' policy-makers tend to be.

Credit demand

The literature refers to interest rate levels and economic growth as the most important variables affecting demand (Bernanke–Blinder, 1987; Calzaa et al., 2003 and Lown–Morgan, 2004). In addition to macro-variables, developments in individual loan applications are analysed as well (depending on availability) (Jimenez et al., 2010; Puri et al., 2009), while others attempt to proxy demand by the credit demand perceived by senior loan officers based on the lending surveys of central banks (Calani et al., 2010; Ciccarelli et al., 2010). Certain firms do not even approach banks with their loan applications on the assumption that they would be rejected anyway, which poses a characteristic problem in the examination of individual loan applications. This phenomenon was observed far more often in the CEE region during the period preceding the crisis, even though a significant portion of those firms would have been creditworthy (Brown et al., 2010 and Popov–Udell, 2010).

Moreover, another difficulty hindering the analysis of credit demand and credit supply is the endogeneity between the credit market and the real economy. This means that it is not only macroeconomic changes that influence credit demand and credit supply, but in turn credit demand and credit supply also influence other macroeconomic variables. (In essence, this is known as the credit channel of monetary transmission, see Bernanke–Getler, 1995.) For example, firms may postpone their investment projects in view of the deteriorating income prospects and reduce their credit demand accordingly, which, in turn, may further decrease production. Therefore, when GDP is used as an explanation for credit market developments, we should keep in mind that credit market processes may also influence GDP.

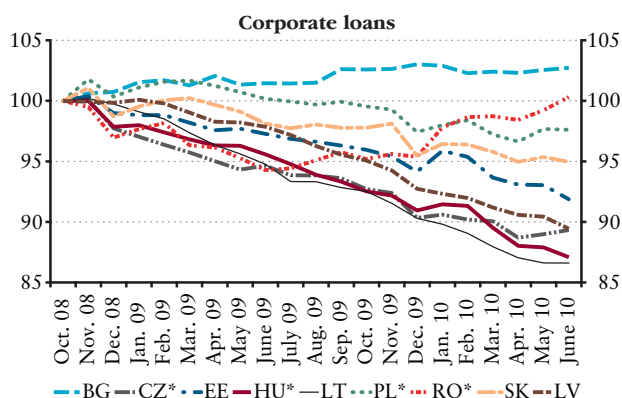
DEVELOPMENTS IN BANKS' CORPORATE LOAN PORTFOLIO⁴ IN THE CENTRAL AND EASTERN EUROPEAN REGION

In 2007 and 2008 – before the crisis – corporate lending increased by 24 percent on average in the Central and Eastern European countries under review, while certain countries saw a significantly higher credit expansion (Bulgaria and Romania recorded growth of 50 percent and 34 percent, respectively). These fast dynamics also reflected the real economic convergence of these countries, as the ratio of corporate indebtedness to GDP in converging countries falls well behind the Western European average. (In 2008, the outstanding amount of corporate loans as a percentage of GDP was 60 percent on average in the examined countries, while this ratio was 80 percent in Western Europe). Similarly to the dynamic credit growth observed before the crisis, the significant contraction in lending during the crisis was a relatively universal phenomenon across the region. The one or two months following October 2008 saw the beginning of a steady – and in many cases still ongoing – decline in lending to the corporate sector (see Chart 1). In a regional comparison, Hungary, the Baltic States and the Czech Republic experienced a far more severe downturn than Poland or Slovakia, where the decline was somewhat more moderate. In contrast, Bulgaria and Romania appear to be exceptions. According to the official statistics, lending to the corporate sector in Bulgaria has increased slightly since October 2008, while Romania reached a turning point and the loan portfolio started to expand in June 2009.

⁴ In addition to bank loans, firms may finance their operations through bond issuance, financial corporations (leasing companies, factoring companies, etc.) or through foreign loans (via parent companies or non-resident banks). Our analysis focuses on domestic bank loans as we believe that of the data available, these are the most reliable indicators of developments in the financing of resident non-financial corporations. The weight of the corporate bond market and the lending provided by financial corporations are negligible in the region. Regarding foreign loans, information would be needed in respect of the net external debt position, as in many cases foreign loans do not imply an actual financing within the country; instead, those funds are passed on through the regional centres operating in the specific country, thus, rather than financing domestic economic activities, they merely expand the financial account of a country on both the assets and liabilities sides. Due to data shortcomings we are unable to generate these data series for most countries under review.

Chart 1

Changes in the outstanding amount of corporate loans (October 2008=100) in the CEE region



Source: National central banks.

Note: In the case of countries marked with * we adjusted for exchange rate effects; in the rest of the cases this was unnecessary due to the exchange rate regime or the use of euro. BG (Bulgaria), CZ (Czech Republic), EE (Estonia), HU (Hungary), PL (Poland), RO (Romania), SK (Slovakia), LV (Latvia), LT (Lithuania).

In terms of maturity structure, developments point to a greater decline in short-term loans in most countries – including Hungary – which also reflects the fact that due to the shorter maturity both the banking sector and the corporate sector were able to adjust more easily in these countries. Nevertheless, a significant decline was observed for even longer-term loans – mostly investment loans – in the Baltic States and Hungary, a development not typical elsewhere in the region. As regards the denomination of loans, the outstanding amount of loans extended in domestic currency declined steeply in the Baltic States (where foreign currency lending was predominant), while a substantial contraction was seen in Romania and Hungary as well. In the rest of the countries, the ratio of foreign currency denominated products remained largely unchanged within the total corporate loan portfolio.

At the same time, as we pointed out in the Introduction, these figures should be treated with great caution, as the indicators of certain countries might be significantly distorted by unique phenomena and statistical issues:

- In the Czech Republic, for instance, according to the Stability Report published by the central bank,⁵ to a certain degree, firms substituted bank loans with foreign loans (through parent banks) and to a lesser extent, by bond issuance; thus, the deterioration in the financing position of the corporate sector was less

severe than the contraction in corporate lending of banks would suggest.

- Turning to Romania, before December 2009, part of FX loans to Romanian firms was extended directly by parent banks primarily for regulatory reasons – i.e. the high reserve requirements on foreign currency deposits. This regulation was relaxed in 2009, which may have contributed to the expansion of the loan portfolio from January 2010 through the retransfer of Romanian corporate loan portfolios by parent banks.
- Bulgaria has also experienced regulation-related distortions: during the boom period regulation limited the growth of banks' balance sheet total. Several credit institutions responded by outsourcing their loans to special purpose vehicles. During the crisis banks reallocated a substantial amount of loans in their balance sheets, which increased the outstanding amount of loans in the statistics even though lending to private sector did not improve in reality. However, information is not available regarding the volume of the reallocated loans and the distribution between the household and corporate segment.

Although such information is not available in respect of other countries, we cannot rule out the existence of similar unique factors.

WHAT CONCLUSIONS CAN BE DRAWN FROM THE DEVELOPMENTS IN INTEREST RATES IN THE REGION?

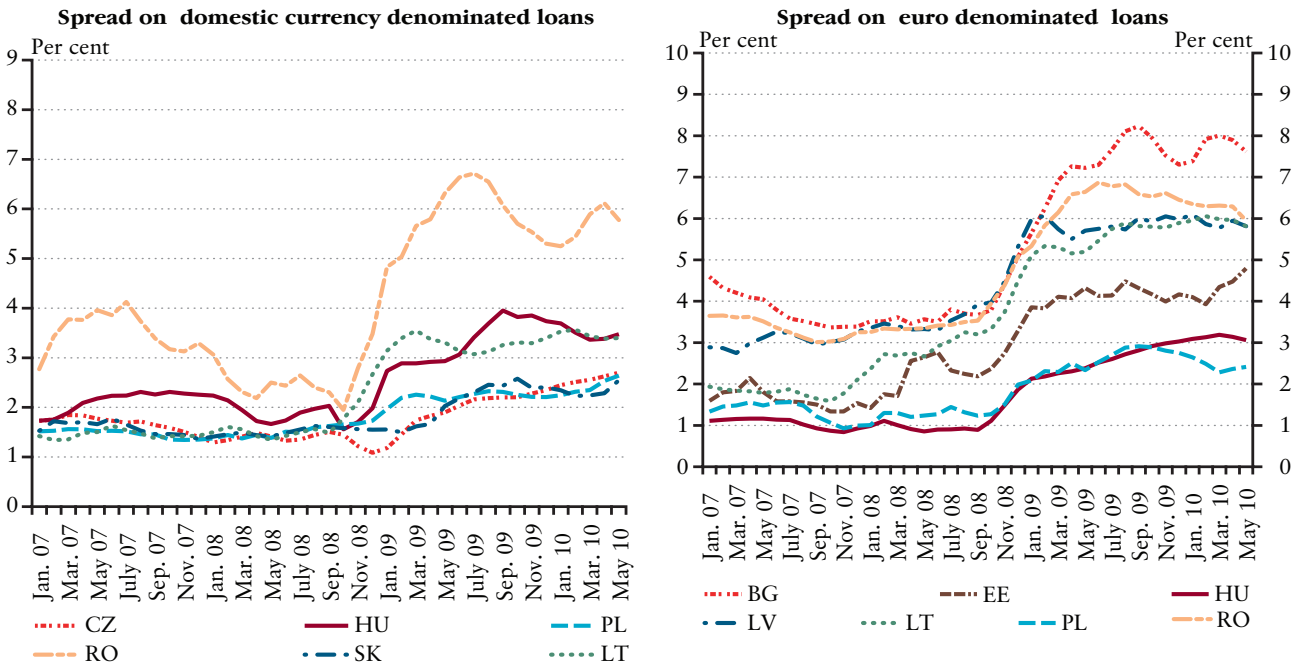
The onset of the crisis led to an increase in the interest rate spread⁶ on corporate loans in every country, but to differing degrees (see Chart 2). In respect of loans denominated in local currency, Romania recorded the highest interest rate spread as well as the steepest crisis-related increase, while in the Czech Republic, Slovakia and Poland the increase of interest rate spreads was more moderate and started from lower levels. As for Hungary, in the pre-crisis period interest rate spread moved more or less in tandem with those recorded in the Visegrad countries; however, as a result of a sharp increase triggered by the crisis the Hungarian interest rate spread diverged from the others. Although the difference in the spread has somewhat decreased since the end of 2009, the level of the Hungarian premium still markedly stands out among the premia observed in other Visegrad countries. Interest rate spreads for euro-denominated loans also increased in every country in the wake of the crisis; however, the Hungarian interest rate spread was one of the lowest in the region both before the crisis and since.

⁵ http://www.cnb.cz/en/financial_stability/fs_reports/fsr_2009-2010/index.html.

⁶ Defined as the difference between the annualised average interest rate on recently disbursed loans and the relevant three-month interbank benchmark rate.

Chart 2

Interest rate spread on new loan volumes denominated in euro and local currency in the CEE region

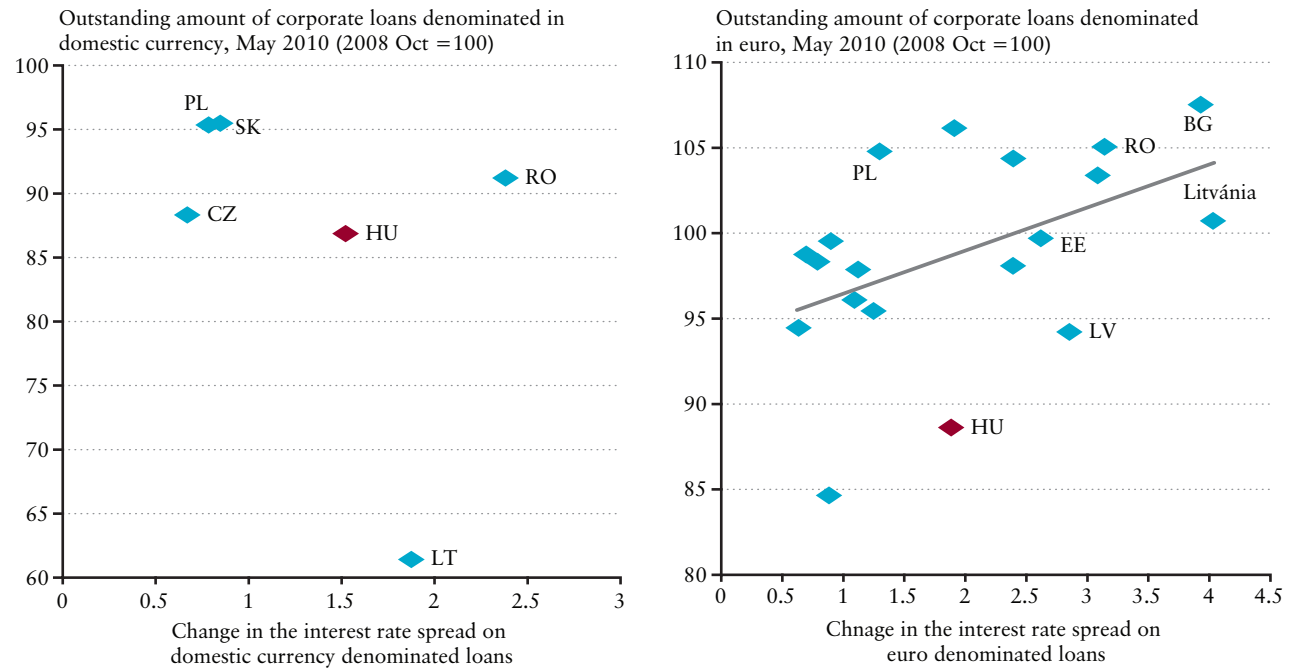


Source: National central banks.

Note: Interest rates smoothed by three-month moving averages.

Chart 3

Relation between the interest rate spread change and corporate lending contraction by denomination during the crisis



Source: ECB, national central banks.

Note: Exchange rate adjusted data. The change in the interest rate spread is the spread on the average interbank benchmark rate in 2010 and the spread on the average benchmark rate during the year preceding the crisis. For euro-denominated loans the right hand chart also indicates euro area countries.

Interest rate developments highlight the special behaviour of credit market prices described in Chapter 1. Examining the relationship between the foreign currency-denominated loan portfolio and interest rates, we find that the smaller the change in the interest rate premia on euro-denominated loans, the sharper the decline in the corporate FX loan portfolio (see Chart 3). While in a normal market this would translate into a decline in demand (surpassing that of supply), several signs suggest that this specific case reflects the dominant role of supply instead; thus, the moderation in prices was merely due to the special characteristics of credit markets. Indeed, lending surveys indicate that banks increased the premia on riskier loans to a larger extent than average premia. Accordingly, if credit conditions are only slightly tightened, the decline in the loan portfolio will be more moderate, leading to a higher increase in average risk premia. This might have been the case in Bulgaria and Romania, where the loan portfolio evidently remained unchanged or even grew with high and rising interest rate spread (although the previously mentioned statistical problems may distort the picture). By contrast, with more stringent credit conditions only clients with excellent credit rating have access to loans, while a great majority of riskier clients will be refused, which will keep the interest rate at a low level; however, lending may significantly contract even in an improving macroeconomic environment. Hungary is in a similar situation: the price at which euro loans are offered is one of the cheapest in the region, yet the contraction in corporate lending is by far the largest. However, Poland is considered an exception, where the interest rate spread remained at low levels and the outstanding amount of corporate loans did not decrease drastically, either.

Looking at domestic currency loans, it is hard to find any correlations; however, Lithuania is worth mentioning. In this Baltic state corporate lending decreased to the same extent as in Hungary, but this steep decline only affected loans denominated in the domestic currency (litas). According to the Stability Report of the Lithuanian central bank, this was a consequence of a considerable surge in the interest rates of litas-denominated loans in early 2009, subsequently banks priced out litas-denominated loans from the market. According to the lending survey presented below, in addition to interest rate conditions, banks significantly tightened their non-price conditions as well. The drastically subdued bank supply, which practically eliminated all litas-denominated lending, reflected fears regarding a potential fall in Lithuania's exchange rate

regime, which pegs the litas to the euro. From the perspective of banks, this would have inflated litas-denominated loans.⁷

NON-PRICE CREDIT CONDITIONS

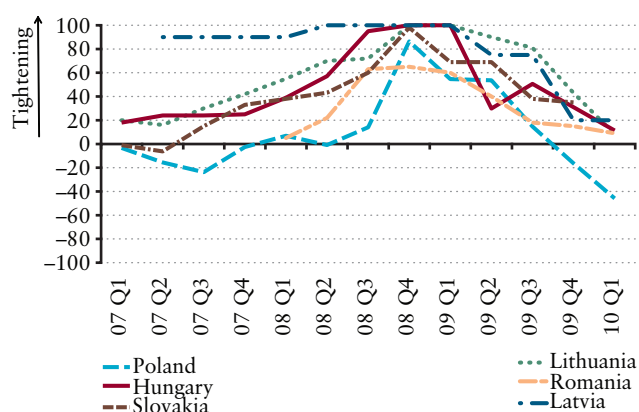
Turning to the non-price credit conditions, in the five countries of the CEE region where lending surveys⁸ are conducted, indicators of corporate credit conditions exhibit rather similar developments: starting from around 2007, an increasingly severe tightening cycle was observed in all of the countries, which continued, albeit with a slight moderation, even after its peak at the end of 2008 (see Chart 4). Of the five countries presented, banks broadly indicated tightening in Lithuania, Latvia and Hungary, which appears to be consistent with the extent of the decline in corporate lending.

By contrast, in Romania and Poland – which are among the countries reporting the slightest decline – the ratio of banks reporting tightening was significantly smaller. As mentioned earlier from the evolution of prices could not be determined unambiguously whether the low interest rate level and the strong decline can be attributed to a negative demand shock or a supply shock. However, in the case of Lithuania, Latvia and Hungary, the lending survey confirms that, with low interest rate levels, non-price credit conditions played a predominant role, and suggests that changes in banks' credit supply had a strong impact on corporate lending.

Chart 4

Changes in corporate credit conditions

(net percentage of banks reporting tightening/easing)



Source: National central banks.

Note: The chart does not indicate the magnitude of tightening/easing, only the direction. The chart indicates changes relative to the previous quarter; the level of credit conditions is unknown.

⁷ There was no such threat in the case of foreign currency loans: thanks to the fixed exchange rate regime, Lithuanian regulations – in contrast to those in Hungary – do not require banks to hedge their euro positions.

⁸ In lending surveys, rather than providing a general assessment of the market, loan officers reply to questions on the developments in demand/credit conditions from the perspective of their own banks. It should be noted that conclusions cannot be drawn from the data of the lending survey with respect to the level of demand/credit conditions or the extent of the change, as that information merely reflects qualitative changes. Accordingly, cross-sectional comparison among individual countries should be interpreted with reservations.

Table 1**Change in perceived demand – net percentage balance of banks reporting increase and decrease**

Countries		2007–2008 Q2	2008 H2	2009	2010 H1
Poland		Increase	Increase	Unchanged	Increase
Lithuania		Increase	Decrease	Decrease	Decrease
Romania		-	Increase	Decrease	Decrease
Slovakia		Increase	Decrease	Decrease	-
Latvia		Unchanged	Decrease	Decrease	-
Hungary	Total	Unchanged	Increase	Increase	Increase
	Investment loans	-	Decrease	Decrease	Increase

Source: National central banks.

Note: the table does not indicate the magnitude of tightening/easing, only the direction. It indicates changes relative to the previous quarter; the level of demand is unknown.

DEMAND-SIDE FACTORS BASED ON THE LENDING SURVEY

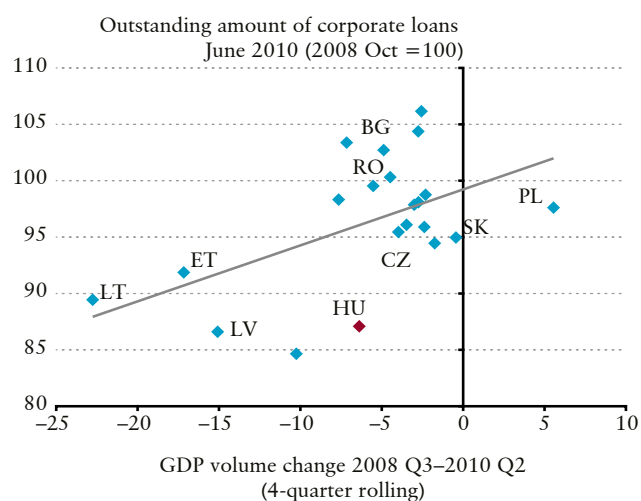
As regards the demand side, the lending surveys show a much less homogenous picture as in the case of credit supply. Respondents in Poland did not perceive a material decline in demand; in fact, some banks experienced growth (see Table 1), which is consistent with the developments in corporate lending and macroeconomic performance. Corporate credit demand subsided in the rest of the countries. By contrast, in Hungary the demand for loans – primarily for working capital loans – steadily increased from quarter to quarter during the crisis, while demand for long-term loans declined. This suggests that demand did not play a predominant role in the development of lending, in view of the fact that the portfolio of working capital loans decreased significantly as well. This phenomenon may be attributed to the fact that, owing to the poor economic performance, the pre-crisis period saw a stagnating demand in Hungary, while demand steadily increased during the same period in other countries in the region thanks to good economic performance. We may conclude that in other countries of the region banks perceived a decline from a higher demand level. Furthermore, due to the peculiarities of the lending survey, paradoxically, supply constraints may also account for the growth in demand in Hungary. Indeed, if supply constraints exist or strengthen, firms are forced to turn to more banks in an attempt to secure a loan, which banks perceive as an increase in demand.

DEVELOPMENTS IN MACROECONOMIC FACTORS IN THE REGION

The recession hitting developed countries spread rapidly to the predominantly small, open economies of Central and Eastern Europe. Firms postponed their investment projects or cut back their production activity, which inevitably reduced demand for loans. The only exception was Poland;

Chart 5

Relation between GDP growth rate and corporate lending contraction (exchange rate adjusted) during the crisis in the CEE region



Source: Eurostat, ECB, national central banks.

Note: For the Czech Republic, the chart indicates an estimate, taking into account the substitution effect between external loans and bank loans.

the only economy in the region, in fact in the EU, to register growth in GDP even in 2009. This can be primarily attributed to the fact that Poland is a less open economy with sufficiently large domestic market. A loose connection can be discerned at the macro level between the fall in GDP and the contraction in corporate lending (see Chart 5), and a similar co-movement can be observed with the changes in industrial production and export dynamics. In accordance with the relation, the Baltic States – which were hit particularly hard by the recession – were among the countries which experienced the largest contraction in lending, while Poland is among those with a more moderate decline in lending. Remarkably, developments in lending and economic growth are much more diverse in new Member States than in the euro area, where credit demand

captured through the economic growth apparently played a negligible role in the development of lending.

However, in some countries macroeconomic fundamentals do not explain adequately the extent of the decline in corporate lending. For example, in Hungary – despite the average severity of the recession – lending to the corporate sector declined to a similar extent as in the Baltic States; in fact, Hungary recorded a substantial fall in the outstanding amount even in the first half of 2010, at a time when macroeconomic conditions had already started to improve.⁹ By contrast, we do not see a similarly pronounced drop in lending either in Romania or in Bulgaria – despite the fact that they faced a similarly deep recession as Hungary – although this may partly reflect the statistical issues indicated above.¹⁰

In summary, based on the demand indicators it appears that credit demand may have contributed significantly to the decline in corporate lending in most of the regional countries as well (while in Lithuania the domestic currency loans suffered a negative supply shock, waning demand may have played an equally significant role in the contraction in total corporate lending). By contrast, changes in credit demand appear to be less relevant in the contraction in Hungary, which suggests that supply constraints were more dominant here in regional comparison.

POSSIBLE REASONS FOR SUPPLY CONSTRAINTS

The fact that a large part of the banking sector is controlled by non-resident parent banks and that banks turn to their parent banks for capital and, in most cases, external funds, renders an analysis of regional banks' credit supply rather difficult. Consequently, subsidiaries' lending ability (which can be captured relatively well by different indicators) and their (more subjective) willingness to lend also depend on the parent banks' risk appetite and lending ability. While subsidiary and parent bank elements can be separated reasonably well in the case of lending ability (on the basis of financial indicators), group control renders this practically impossible in the case of willingness to lend, and – owing to the group level allocation of capital and resources – it is extremely difficult to separate the subsidiary's lending

ability from the parent banks' willingness to lend. The latter problem is clearly illustrated by the connection between the capital adequacy of the banking systems and the decline in corporate lending. Although data suggest that banks' capital adequacy (see Table 2) was higher in the countries (for example, Romania and Bulgaria) where balance sheet statistics indicate a lesser decline – or none at all – in corporate lending, the causality is not entirely clear. Conceivably, a better capital position may have contributed to banks' less restrained credit supply in these countries, or parent banks may have allocated more capital to them with the intention of increasing their lending there (or they attempted to prepare for an increase in corporate loan portfolios in view of the regulatory reasons referred to above).

Considering subsidiaries' lending ability, it appears that the decline in corporate lending was less pronounced in banking systems with a lower loan-to-deposit ratio (see Chart 6), while in Hungary and the Baltic States – where a modest deposit portfolio combined with significant credit growth drove the loan-to-deposit ratio well above 100 percent¹¹ – there was higher pressure for adjustment on the asset side. Additionally, the importance of internal funding increased during the crisis due to the decrease – with the exception of Poland and Hungary – in external funding (see Table 4).¹² In the Baltic States the decrease in external funding was consistent with the decline in the outstanding amount of loans to the domestic private sector. In Bulgaria and Romania, however, the decline in external funds did not hit banks very hard, because the outflows were partly offset by the increase in the stock of domestic deposits.

At first sight, the situation of Hungary in this respect looks paradoxical: despite the fact that the banking sector did not experience a decrease in external funding, the decline in the corporate lending was far more substantial in Hungary than in other regional countries. However, this had a technical reason: amid swap market turbulences, domestic banks reduced their swap portfolios vis-à-vis non-residents during the crisis, thus – despite the abundant forint liquidity of Hungarian banks – non-resident parent banks were unable to reduce their foreign currency funds in their subsidiaries, because this would have led to a widening of domestic banks' foreign currency position in

⁹ The substitution between bank lending and other funding sources cannot be observed in Hungary: the external funding of regionally active firms were subsequently transferred to another country, which increased the total corporate outstanding amount both on the liabilities and on the assets side.

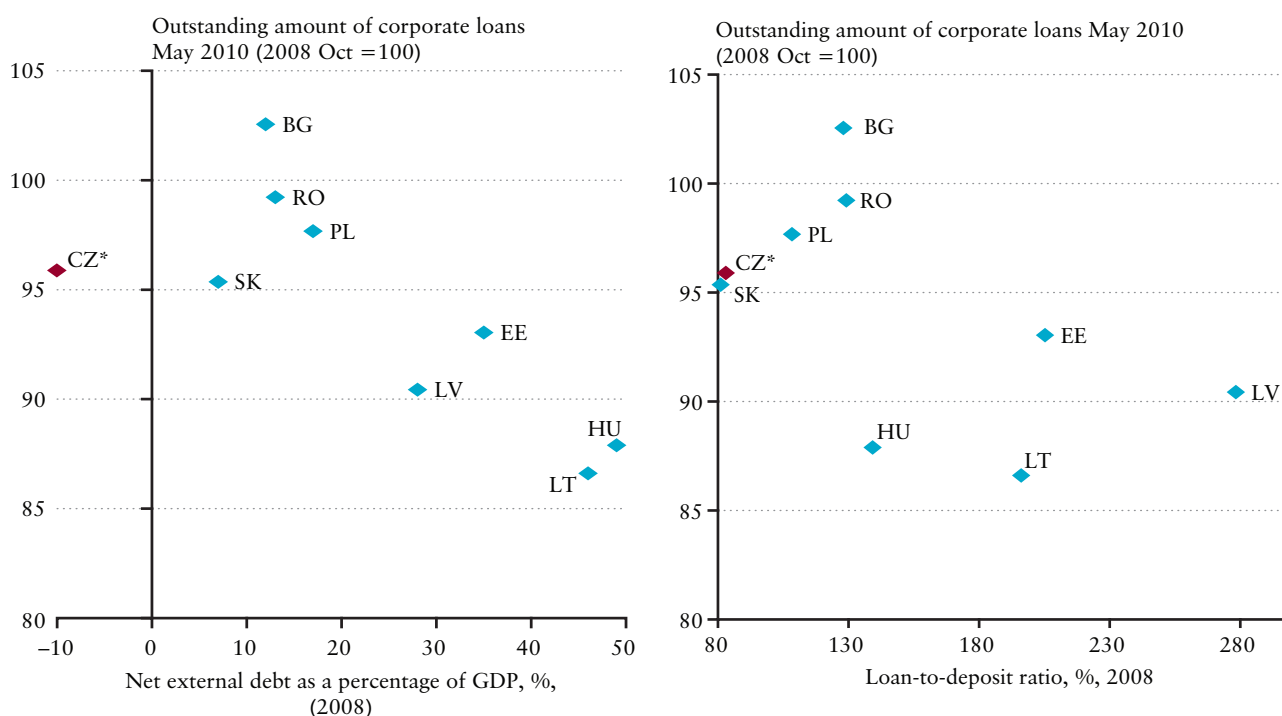
¹⁰ As it relates to the parent bank's side of lending ability: the financial indicators of parent banks do not reveal any significant differences between individual countries (see Table 2). The Tier 1 rates of parent banks varied between 10 percent and 10.5 percent in most countries, with the exception of Latvia and Lithuania, which recorded a rate under 10 percent in 2009.

¹¹ In addition, the share of foreign currency loans is higher in these countries, increasing their vulnerability.

¹² The impact of this was less substantial in the Czech Republic and Slovakia, where external funds play a negligible role in the financing of banks, which is clearly illustrated by the fact that the loan-to-deposit ratio is below 100 percent in both countries.

Chart 6

Relation between the loan-to-deposit ratio/net external debt and corporate lending contraction during the crisis (exchange rate adjusted) in the CEE region



Source: National central banks, IFS, Eurostat.

Note: For the Czech Republic, the chart indicates an estimate, taking into account the substitution effect between foreign loans/bond issuance and bank loans.

their balance sheets.¹³ Accordingly – unlike in other countries of the region – in the balance sheet of the Hungarian banking sector the decline in private sector lending was primarily offset by an increase in central bank bonds on the asset side (resulting in abundant forint liquidity), rather than a decrease on the liabilities side (in particular, in external funds).

Turning to banks' willingness to lend, group-based control makes it unnecessary to examine parent banks' and subsidiaries' willingness separately. Following the collapse of Lehman Brothers, willingness to lend was primarily determined by risk aversion. Although the credit losses suffered by Lithuania and Latvia – which were rather severe even in regional comparison – may have contributed to the substantial downturn observed in corporate lending, interestingly enough we cannot discern a connection between lending and portfolio quality or the rate of

portfolio deterioration in the other countries under review (see Table 2). Therefore we may infer that there is not a strong correlation between banks' risk appetite and the actual losses they sustained. Apparently, foreign investors' and owners' risk perception was determined by general (subjective) concerns about the vulnerability of the specific economy and its reliance on external funds, factors which are best captured by the net external debt of a country (see Chart 6). At the same time, this also implies that the severe public indebtedness may have significantly deteriorated the risk perception of Hungarian banks and the economy.

CONCLUSIONS

As pointed out in the reports published by regional central banks, demand and – as a result of a more stringent lending policy – supply both contributed to the deceleration observed in the credit growth rate. Beyond this, it is hard to identify

¹³ Unlike their peers operating in a fixed exchange rate regime, Hungarian banks resorted primarily to the swap market to hedge the open foreign currency positions stemming from foreign currency lending. Consequently, the external *foreign currency* requirement of the Hungarian banking sector was much higher during the pre-crisis period than indicated by the on-balance sheet statistics (swaps are off-balance sheet items). In the wake of the crisis, however, the forint requirement of non-residents abated, and it was more difficult for Hungarian banks to find foreign partners willing to swap foreign currency against the forint. For this reason, domestic credit institutions reduced their swap portfolios. Accounting for this decrease, similarly to other countries in the region, Hungarian banks' external funding decreased as well.

and quantify the role of demand and supply. Relying on aggregate statistics and a simple analysis framework, in our analysis we have attempted to determine which countries of the region may have had stronger credit supply constraints in addition to waning demand. Based on the factors affecting supply and demand and the findings of the lending surveys we may conclude that banks' credit supply constraints may have contributed more in countries where the corporate lending declined dramatically. Banks' supply behaviour appears to reflect a country's vulnerability and reliance on external funds, factors which had a negative impact both on risk appetite due to high net external indebtedness and on lending ability due to high loan-to-deposit ratios. Accordingly, the higher a country's net external indebtedness was, the less inclined non-resident investors and owners were to provide additional funds to the country's banks – and hence, companies. This holds especially true to Hungary, where the decline in lending was far more significant than would be explained – based on regional comparison – by the recession of the real economy, or would be consistent with the corporate credit demand indicated by the lending surveys. Thus, the shrinking credit supply may have contributed more significantly to the decline in corporate lending in Hungary. Consequently, low interest rate premia and a pronounced contraction in lending suggest that supply constraints prevent riskier clients from obtaining loans, and limit the access to loans only to corporate clients with a high credit rating. However, the applied analytical framework is not suitable for determining exact measures (or impacts); moreover, in view of the comparability problems of regional data and statistical distortions, our findings should be interpreted with due caution.

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ANNEX

Table 2

Banking system indicators at the end of 2009

	Loan-to-deposit ratio	ROA	Tier 1 ratio	Tier 1 ratio (parent banks)	NPL	Change in NPL 2008–May 2010
Bulgaria	126	1.1	17.5	10.6	8.2	9.0
Czech Republic	75	1.4	17.2	10.3	5.7	2.8
Hungary	143	1.7	11.9	10.4	7.4	4.4
Estonia	190	-3.4	9.4	10.4	4.1	2.8
Latvia	255	-4.0	10.8	8.6	19.6	15.2
Lithuania	169	-3.9	8.0	9.4	4.6	14.7
Poland	105	0.8	12.1	10.0	8.0	4.7
Romania	118	0.5	12.9	10.0	11.6	9.2
Slovakia	87	0.5	11.6	10.4	5.4	4.0
Euro area	107	0.2	10.1	–	4.2	2.0

Source: ECB, autonomous research, *Bankscope*.

Note: NPL indicates below average, doubtful or bad loans (loans expected to generate losses). Exceptions: For Slovakia it contains loans with a delinquency of over 90 days. For Bulgaria it contains restructured loans and loans which generated losses.

Table 3

Credit aggregates at the end of 2009

	Corporate loans by banks (as a percentage of GDP)	Corporate loans total (as a percentage of GDP)	FX denominated corporate loans/total corp. loans	FX denominated loans/total loans	Average credit growth (2007–2008)
Bulgaria	46	120	75.3	58.1	49.6
Czech Republic	21	41	18.1	8.2	15.2
Hungary	27	67	57.7	64.5	14.9
Estonia	52	47	91.5	86.9	15.9
Latvia	50	75	94.4	92.2	23.2
Lithuania	35	46	74.9	73.4	24.0
Poland	15	36	23.7	32.8	25.3
Romania	20	48	59.5	60.3	33.7
Slovakia	22	28	2.4	1.1	17.1
Euro area	52	74	n.a.	n.a.	10.0

Source: ECB, Eurostat, national central banks.

Table 4**Liabilities side of banking systems in the CEE region**

	External liabilities/Total liabilities (2008)	External liabilities/Total liabilities (June 2010)	Change in external liabilities (as a percentage of total liabilities)	Private sector deposits/Total liabilities (2008)	Private sector deposits/Total liabilities (June 2010)	Change in private sector deposits (as a percentage of total liabilities)
Bulgaria	26.2	19.8	-6.4	52.9	55.7	2.8
Czech Republic	9.8	8.1	-1.7	55.9	58.8	2.9
Hungary	25.4	26.1	0.7	35.8	35.2	-0.6
Estonia	43.4	40.5	-3.0	34.4	38.6	4.2
Latvia	58.6	49.3	-9.3	23.8	26.5	2.7
Lithuania	45.8	36.3	-9.5	38.3	42.5	4.2
Poland	14.9	15.6	0.7	52.9	54.5	1.6
Romania	29.7	26.3	-3.4	44.2	46.6	2.4
Slovakia	4.6	3.9	-0.7	52.4	61.9	9.5
Euro area	15.0	13.7	-1.3	29.3	31.6	2.3

Source: ECB, national central banks.