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CREDIT CONTRACTION IN THE CZECH REPUBLIC: CAUSES AND EFFECTS

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Contents

1 Introduction

Between 1997 and 1999, the Czech economy had undergone a fundamental shift in its lending practices. This particular development is most often referred to as a *credit crunch*, see Singer, Pospíšil (1999) or Čihák (1999). Nevertheless, owing to the unique nature of this credit phenomenon in the relatively short history of the Czech economy, defining and applying this term to Czech conditions has caused a number of complications. First of all, it is not always clear what specific authors mean by the term “credit crunch”.

Parabasioglu (1996) defines *credit crunch* as a decline in the supply of credit stemming from banks’ reduced willingness to lend, which is not however accompanied by a rise in lending rates. Woo (1999) associates the reduced willingness of banks to lend with a decline in the capital of banks, causing, in turn, a sharp leftward shift in the credit supply curve. Woo, the same as, for example, Syron (1991), identified the term “credit crunch” with *capital crunch*, i.e. the low willingness of banks to lend, which is directly related to the reduced quality of their assets, and as a result, puts pressure on their capital. Contrary to this view, Ghosh and Ghosh (1999) claim that a *credit crunch* creates a situation in which interest rates do not equilibrate the supply and demand for credit, and, therefore, quantity rationing develops. The same as Singer and Pospíšil (1999), these two authors claim that the

term *credit crunch* is closely related to *credit rationing*. For the sake of completeness, let us remind you that according to the textbook definition of *credit rationing*, Jaffe and Stiglitz (1990), the term refers to a situation where certain borrowers are refused credit, in spite of the fact that they are willing to pay the market rate, while other, apparently similar borrowers are supplied with credit. It is then clear from the short descriptions above that the term *credit crunch* had been defined in a very ambiguous way and is often times only explained indirectly with the help of other more precisely defined terms, which causes serious problems in understanding. Out of all the terms given so far, the term *credit crunch* has been defined the most obscurely.[1]

In view of these definitions[2], it is clear that by the term *credit crunch* the authors want to describe the changes in the behaviour of the supply side of the credit market, i.e. banks. Major efforts, therefore, are always concentrated in this area. Apparently, the most convincing definition of *credit crunch* was given by Bernake and Lown (1991). According to them, it involves a clear shift of the supply curve for the credit market to the left, while real interest rates, as well as the quality of the loan applicants, do not change. In other words, a *credit crunch* according to these authors is an abrupt disturbance on the credit market that is not caused by changes in the standard factors normally influencing the supply or demand for credit.

Confirming the validity of this definition with data on the Czech Republic opens the door to the whole issue of credit contraction. We will argue that the textbook *credit crunch*, so to speak, as defined by Bernanke and Lown (1991), did not occur in the Czech Republic.

The study starts off with an analysis of the close link between the economic, financial and purely macroeconomic explanations for credit market disturbances as an alternative approach to understanding credit contraction, in contrast to the

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[1] Interpretation of the term *credit crunch* is also complicated by the fact that it was used by the Federal Reserve as a technical term for administrative measures which would be referred to as a *credit ceiling* in the Czech Republic. When transferring this term from the administrative terminology used by the Fed at the beginning of the 1980s to the area of market agents (banks), this term has acquired quite a different meaning, see Jaffee and Stiglitz (1990). In Czech, we could also say that private banks may also set their own *credit ceilings* for clients.

[2] Besides what has already been mentioned above, there is also a wide range of other definitions and approaches for expressing *credit crunch* based on, for example, the discrete supply curve which could shed some light on the subject. However, in our opinion, they represent only variations on some of the topics in the main text.

approach of Bernanke and Lown (1991). We will analyse to what extent lending developments could be affected by the creation of a new equilibrium on the market because of a “burst” in the price bubble for market assets whose formation was also conditioned by macroeconomic and institutional factors. In the next chapter, we will confirm the hypothesis that a decline in lending, among other things, was caused by a change in the behaviour of the banking sector for the group of large banks, especially Česká spořitelna and Komerční banka. We will point out a number of factors that contributed to credit contraction. An integral part of our analysis is to find out whether the changes in the regulatory framework were one of a number of factors changing the behaviour of banks. We will also try to support our theory that the large partially state-owned banks were forced to re-evaluate their credit strategy in view of the acute lack of capital. In analysing the demand side of the credit market, we argue that there were no substantial changes in the performance of the business sector, but its continued low performance below the level of profitability forced the banking sector to change its behaviour. In addition to the issues mentioned above, we also address the question of whether credit contraction is an exceptional circumstance in the Czech Republic, whether or not it can be explained by factors other than those of the domestic economy, or whether it can be cleared up by using a standardised economic apparatus and with the help of analogous developments in other countries. We will try to answer the question to what extent the situation on the credit market could be affected, strengthened or made worse by extraordinary transformation circumstances. At the end of the paper, we will formulate a response to the question of what is the optimal short-term and medium-term monetary policy response to the analysed changes in the credit market.

2 Credit, Financial and Economic Cycles and Their Relationship to Disturbances on The Credit Market

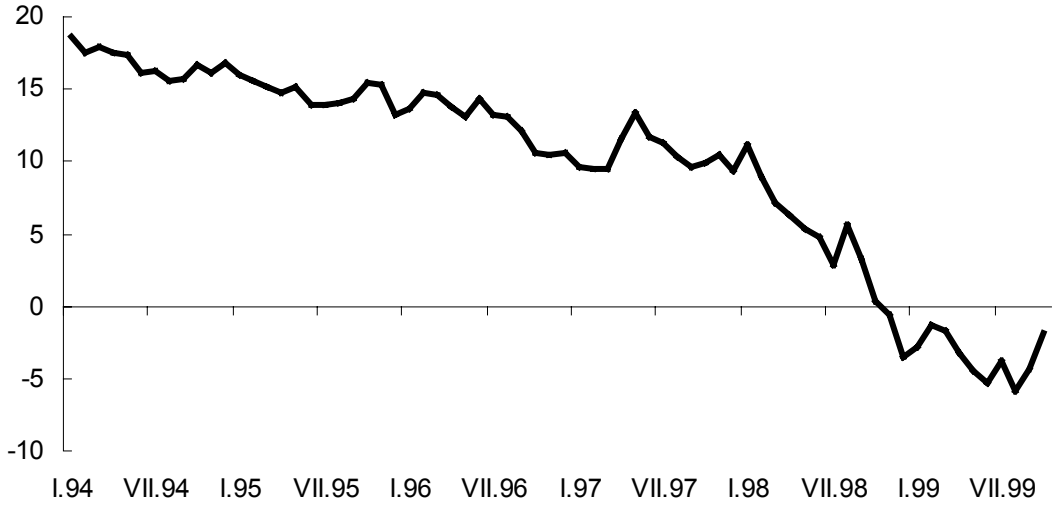
2.1 Is there a credit crunch in the Czech Republic?

Since approximately the second half of 1997, we have been monitoring (with small deviations) the year-on-year decline in the growth rate of lending in the Czech Republic, which in 1998 Q4 registered a decline (Chart 1)[3]. Does, however, the monitored credit contraction correspond to the Bernanke and Lown (1991) definition of *credit crunch*?

[3] Chart 1 works with total credits. We would like to rule out any misconceptions that this chart in any way conceals developments in the group of "newly granted loans" according to CNB statistics, which registers a slight rise even in the monitored period of credit contraction. According to the available analyses, the rise in new loans is generated in an absolute majority of the cases by the foreign bank sector, and an adequate approximation of this trend for newly granted loans is therefore presented in Chart 9, which categorises lending by the individual banking groups.

Chart 1

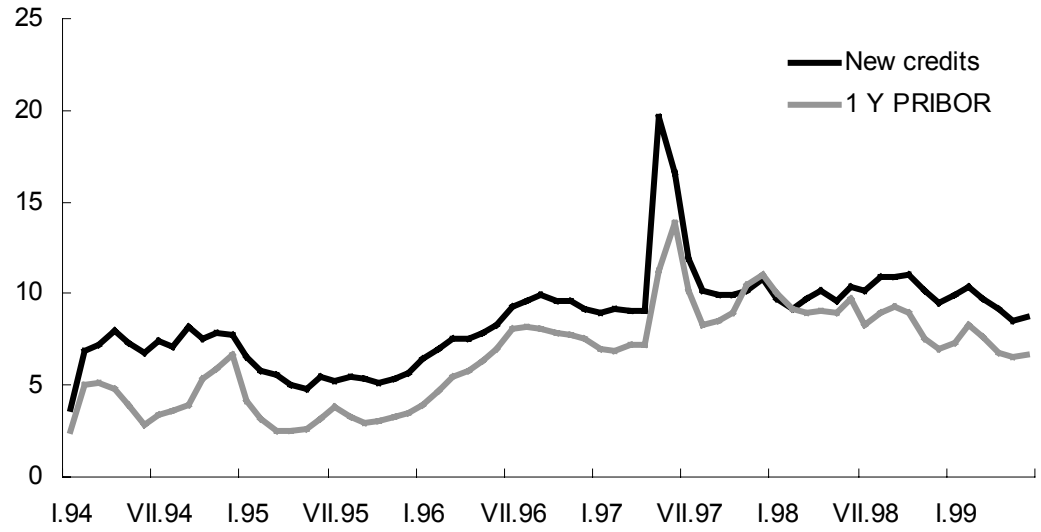
Growth rate of credits (y-o-y, %)



Source: CNB

We argue that this definition only partially corresponds to the situation in the Czech Republic. Chart 2 shows that interest rates in real terms did not remain constant over the period of 1997–1999. On the contrary, interest rates shifted to a higher level than in the previous period, especially after the exchange rate turbulence in May 1997. Real interest rates gradually returned to their original level, and from the last third of 1998, they started to coincide more with the pre-May level. In this context, there could have been a change in the conditions for the credit market with a standard impact on reducing demand for credit. Nevertheless, this explanation is insufficient in view of the extent of contraction on the credit market. The situation is different, though, as far as the second half of the definition is concerned, i.e. the quality of companies as dominant credit applicants. As we will show in more detail in Chapter 3, the financial performance of the individual industrial sectors between 1996 to 1998 did not indicate any deterioration. In the theoretical section, we will present an argumentation apparatus to explain that with the existing level of banking intermediation in the Czech Republic, deterioration of the financial situation of companies during 1998 could be considered as an effect of reduced lending rather than a cause. However, the sources of the decline in lending in the Czech Republic must be identified and understood primarily through applying economic theory and empirical evidence from a number of countries.

Chart 2



Source: CNB

2.2 The financial and credit cycle and its real impact

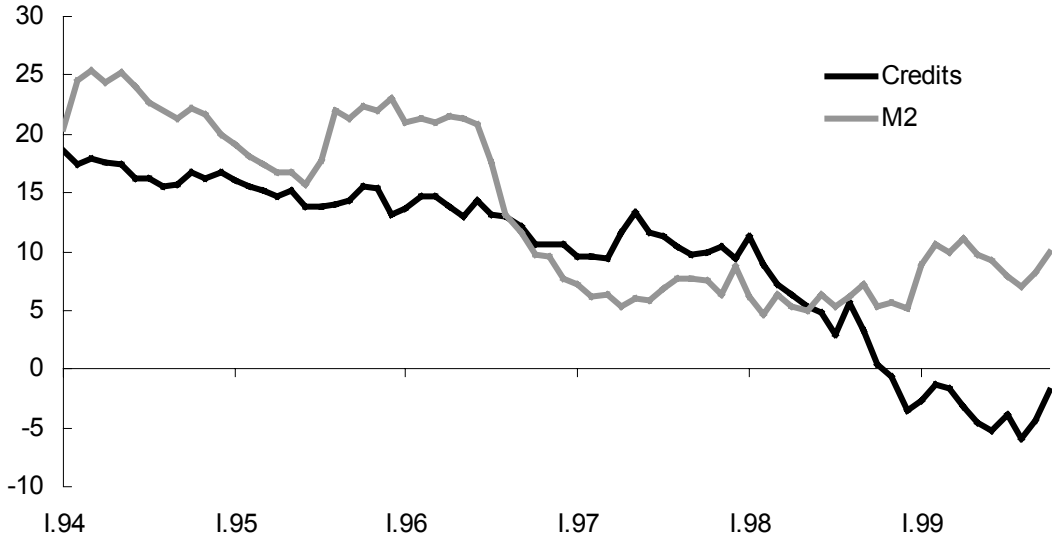
Let us first approach the origins of credit contraction on a theoretical basis. First of all, we will apply data on the domestic economy to this framework. Economic theory periodically returns to the issue of the relationship between lending fluctuations and fluctuations in the economic cycle. Some empirical work on the relationship between lending and changes in output had, ultimately, a very strong impact on the central bank's practical policy. Friedman (1993) convincingly showed that there is a closer relationship between the volume of debt and GDP than between nominal GDP and money. According to Dornbusch and Fischer (1994), research of this type affected the Federal Reserve's decision to use lending as one of its intermediary targets. The logic behind the relationship of the credit and economic cycle is relatively simple. This is based on the conviction that rising expenditure can be financed in particular by loans, so that a rise in debt should fluctuate along with any rise in expenditure . Specifically, this relationship should apply more to investment than to other types of expenditure. For this reason, according to Dornbusch and Fischer (1994, p. 383), we should "expect the volume of loans to be linked to GDP".

In the domestic economy, however, finding empirical evidence for this

relationship is relatively difficult. The Czech Republic has not gone through even one complete economic cycle, and in addition, the existing empirical evidence is also influenced by the non-standard character of the transition period. This could significantly strengthen the link between economic growth or decline and the growth or decline in lending.[4] In spite of this, a quick look at the relationship between non-adjusted credits, the money supply and real GDP (Charts 3 and 4) indicates that a clear link between the variables could exist in Czech conditions.[5]

Chart 3

Growth rate of credits and M2 (y-o-y, %)



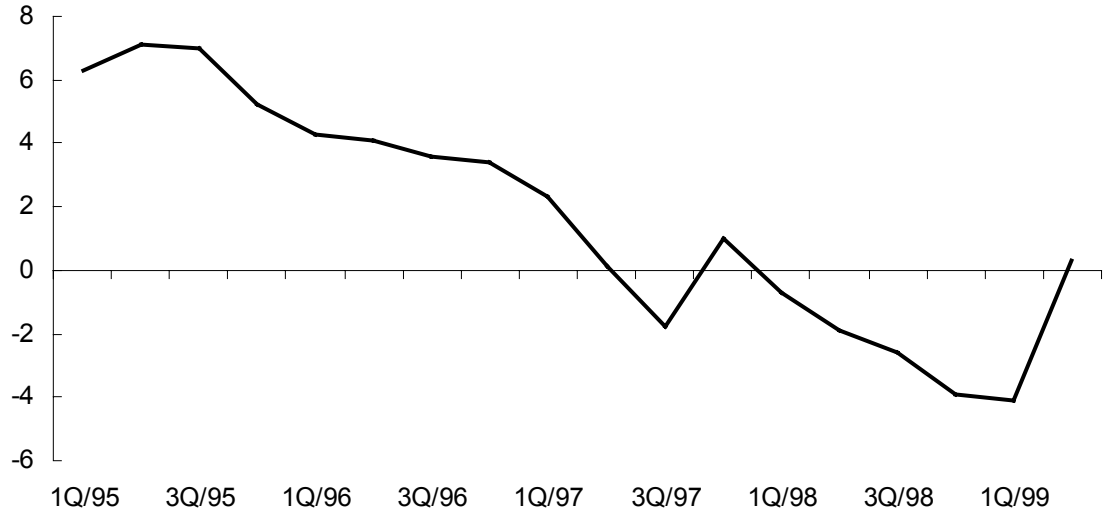
Source: CNB

[4] As Calvo and Coricelli (1995) note, in emerging market economies, especially in the initial stage when most of the banks are still state-owned, loans usually serve as a substitute for the subsidies that were provided in the past. This does not in any way involve standard relations between supply and demand on the credit market.

[5] Given the objective problems mentioned with the data base, the methodology for this study is more logical-deductive than empirical-inductive at least in the theoretical sections, as will be clear from other parts of this text to follow. This corresponds well to the methodology of most authors who will be mentioned in the theoretical section. Deductive and logical evidence for the theoretical framework should substantially make up for the lack of data.

Chart 4

Real GDP (1995–1999)



Source: CSO

Let's have a look at the credit and economic cycle in more detail.[6] We will consider, for example, a hypothetical, model situation where the central bank autonomously increases the money supply. Available funds in the form of reserves are channelled to banks and thus increase their credit potential. Thanks to a higher volume of reserves and lower interest rates, even companies whose projects under normal circumstances[7], i.e. in the absence of expansive policy, are "unloanable", are able to borrow from banks. An increase in the amount of accessible credit and the higher credit potential of banks increase the risk that the credits granted for the

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[6] The relationship between money, loans and the economic cycle has a strong theoretical base in neo-Austrian theory, i.e. the financial boom-bust cycle, especially Mises (1953) and Hayek (1933), or for example, a more recent author Shostak (1999). On this basis, the "unbalanced role of money and therefore credits in the economy" is positively stressed, as Čihák (1998) accurately stated. In other words, this theory argues that substantial changes in the economic cycle are directly or indirectly connected to fluctuations in the money supply that change the time structure of production. This approach will provide the framework for this chapter. Note that another theoretical standpoint for analysing the financial and credit cycle is the post-Keynesian money theory, see Davidson, Weintraub (1973) or Minsky (1957). This, along with its conclusions, corresponds very closely to the conclusions of the neo-Austrian school, even though the two approaches are to a large extent conceptually and methodologically contradictory.

[7] Hayek claims that normality is very relative in the case of the money cycle, because there are examples of countries where money pulled by growth merely alternates with money pushed by a decline, and the period of normality is very difficult to identify.

projects will be irrecoverable. In this stage, however, it does not necessarily have to lead to adverse selection or asymmetric information. If the economic cycle originally stimulated by money begins to show unbalanced tendencies, then the projects would almost immediately loose their profit-making capabilities. A surplus of available resources permits financing of an even larger number of longer-term projects requiring a higher level of investment with a longer maturity.[8] In other words, owing to a higher volume of available resources, the time structure of production is prolonged. A higher amount of money invested in more demanding products from a capital standpoint increases the prices of capital goods and attracts new producers to these industries. They, in turn, must hire new employees and arrange new buildings and other production sites. The price of the production sites rises in proportion to real estate prices. Of course thanks to credit expansion, a substantial part of the expenses are financed by investors through bank credits. This particular stage is commonly associated with growth in real economic activity and higher investment opportunities.

However due to wage and rent recipients, the expanded money supply begins to surface in the economy and, in turn, causes a rise in the price of final consumption capital, or puts pressure on increased import. Internal or external signs of imbalance, therefore, start to appear.[9] The problem lies in the fact that money invested in production with a longer time structure begins to surface in the economy in the form

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[8] Hayek (1999, p. 112) clearly states: "The initial, general stimulus for economic activity that is caused by a rise in the money supply occurs even in spite of the fact that attained prices and, in turn, profits are higher than originally expected. Every business venture prospers, even those which under normal circumstances would not be prosperous. However, this situation can last only if a general rise in prices is not anticipated. When this is calculated into the plans, then even the continuation of price growth at the same rate would not represent such a stimulus as at the beginning." This statement logically evokes the idea of Lucas (1973) concerning economic cycles caused by confusion in differentiating between absolute and relative prices.

[9] In this stage, tightening of monetary conditions is a logical reaction to the imbalances. Reducing the supply of money and increasing interest rates means that projects that were experiencing a phase of creditable and returnable expansion become irrecoverable. In addition, the credit potential of banks is reduced, and banks then reduce their credit exposure to their clients. A number of projects cannot even obtain enough financing for generating a profit. In this stage, contraction involves a series of steps and effects that are logically opposite to expansion. A drop in the money supply is followed by a drop in the supply of credit, and the external result of the processes on the money and credit market is a simultaneous drop in overall economic activity.

of expenses for final production capital, regardless of whether these projects have produced anything or not. The result of this process is the creation of gaps between supply and demand, reflecting, in turn, an imbalance. In this case, economic policy is forced to respond by tightening conditions, for example, by raising interest rates or reducing government expenditures, or both of these measures at the same time. The logic of this concept is clearly related to the sequence of steps that had developed in the domestic economy between 1993 and 1998[10]. In order to form a clearer picture of the situation, though, it is still necessary to:

1) Explain the mechanism increasing the impact of the money and credit cycle on the real economy.
2) Identify the origin of the rise in money issue, and also.
3) Put the money and credit cycle into some context, as well as its impact on the stability of the financial and banking sector.

2.3 Price bubblees and creating a new equilibrium

Let's begin with the strengthening mechanism that sends credit cycle shocks to the overall economy. The whole process of the financial boom-bust cycle can now be expanded on with the help of the model approach presented in Kiyotaki and Moore (1997) and Kiyotaki (1998) involving a situation where credits are backed by real estate or securities. This approach explains how even relatively small price shocks on market assets can expand credit in the economy by the transmission mechanism and how they can be strengthened by overborrowing of the economy and the large volume of mortgages for loans.

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[10] Also in relation to the character of emerging markets, it is important to mention another factor leading to financial crisis as a result of the financial cycle: liberalisation or deregulation of the financial sector. Some authors, e.g. Demirgic-Kunt and Detragiache (1998), consider liberalisation or deregulation of the domestic financial system as the most significant factor leading to financial crisis. As far as an emerging market economy is concerned, brisk deregulation in many areas is for the most part commonplace, including a financial system where a higher tendency of financial crisis is more expected than in a standard market economy.

Let's assume that there is a constant volume of assets in the economy (for example, real estate), that on the one hand could act as a production factor and on the other hand serve as a pledge for credit. If there is a risk in the economy of non-performing loans backed by mortgages, then the volume of credit that banks are willing to provide will be limited by the amount and price of the real estate used for collateral on these loans. As a result of this development, however, the credit constraints are not constant, but will change in proportion to the price of mortgages. However, their prices are dependent on the volume of lending. In other words, the amount of disposable resources in the economy directly affects the prices of these mortgages. Therefore, there exists a certain mutual dynamic time relation between these variables.

Let's consider now the situation in which the prices of real estate suddenly fall.[11] When there is a drop in the price of assets serving as collateral on a loan, the share of the initial credit volume backed by mortgage liens declines, and at the same time, credit constraints understandably become tighter and stricter. Due to reduction in the prices of collateral, the balance sheets of commercial banks worsen and, in turn, banks start to put restrictions on corporate lending. Regardless of whether the performance of these companies changes or not, the change in prices for market collateral automatically creates unfavourable lending conditions for corporations that as a result of this constraint, reduces their production and affects the lower final output of the economy. The key result of this model situation is that, from the point of view of credit contraction, absolute performance is not of primary importance for companies, but on the other hand, relative performance, e.g. expected cash-flow in relation to the price of collateral that a company can offer as a guarantee on a loan. If the common denominator of relative performance would suddenly change (i.e. the price of a company's assets, real estate, shares, etc.), then the accessible volume of credit automatically drops, even if the company's absolute performance has not changed (i.e. profit, market share, etc.). A shift in the price of collateral alone to a new level and a change in the relative performance of companies could ultimately,

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[11] A reason could be, for example, a monetary policy decision to increase interest rates. In this case, agents exchange the less liquid assets in their portfolios for more liquid assets (theoretically in this case, let's use money), in other words, those that can momentarily produce more profit. This type of mass conversion causes a sharp drop in the prices of alternative assets, in our particular case, real estate.

though, reduce even the absolute performance of companies, because this complicates corporate access to additional credit funds. The value assigned to the collateral on the offered asset in comparison to the price of financing resources had also changed. If securities function as collateral, a sudden market crash caused by panic could be a reason for the fall in prices. This mechanism could then cause a substantial decline in Tobin's q as companies provide their own shares as collateral, which would increase the costs for foreign resources. Therefore, there is nothing that we could really call absolute return on credit projects. The goal then is to assess only the relative return. In other words, projects can make a profit only under certain conditions (in relation to interest rates, prices, etc.) If the conditions would suddenly change, which could be, for example, lowering the value of a company's collateral or assets, then the relative return on the credit project would also change. If the price bubble bursts, then the relative return on many already financed projects would be lowered.

According to the model, price shock changes alone for some market assets could in the end reduce overall economic activity. The more serious this decline is, the more a company would be dependent on credit resources.

2.4 Types of financial crises and credit cycles

Now we need to put the financial and credit data fluctuations into context with the behaviour of banks and financial crises. Macfarlane (1997) has created a very simple yet precise categorisation of financial crises. He claims that economic policy is now capable of dealing with the "old-style of standard economic crisis" stemming from the government's imprudent fiscal and monetary policies.[12] Loose fiscal and monetary discipline causes a permanent monetary overhang which surfaces as accelerating inflation, a loss of competitiveness, large current account deficits and a collapsing currency. An already proven recipe for this type of financial crisis is strict fiscal and monetary discipline – today typical for certain developing countries, though it is not foreign to even some advanced economies. The starting point for this old-

[12] In fact, this old-style crisis has led the neo-Austrian school to the already described way of explaining the relationship between money and economic activity.

style crisis is typically the domestic monetary and fiscal authorities that themselves supply money to the system and, therefore, turn the wheels of the cycle.

According to Macfarlane, though, after experience with the Asian crisis, it is clear that we are standing face to face with a new style of crisis. With this new style, an increase in lending is also typical, but the catalyst is not loose monetary policy or fiscal discipline, but the inflow of foreign capital. As opposed to the old-style crisis, which is typical for macroeconomically unstable and, from the viewpoint of fundamental characteristics, paralysed countries, this new type affects more or less healthy economies with a very stable macroeconomic framework. In fact, the more stable a country is and the more it nurtures a perspective macroeconomic outlook, the more likely that it will become dangerously attractive for foreign capital.[13]

The expansion phase is identical to what we have already described in connection to the money cycle. For supporting this claim, we could refer to Jonáš (1998a, p. 6) who describes the onset of increased lending and the rise in investment activity in East Asian countries as a situation where "the goal of banks was to find out whether foreign resources were effectively allocated. Nevertheless, what is now clear is that the volume of foreign capital inflow to the banking sector significantly complicates the banks' ability to identify healthy projects that would not expose the banks to excessive credit risk". In fact, we can support this claim further by adding that the amount of free resources exceeded the general level of potentially profitable and, therefore, creditworthy projects in these economies.[14]

In addition, prolonging the production cycle could be complicated by problems of asymmetric communication and adverse selection, which are concepts that neo-Austrian money theory did not address. Monetary expansion in this new style of crisis

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[13] If we were to apply Macfarlane's sharp division of old-style and new-style crises to the Czech economy, then the financial crisis of 1997 in the Czech Republic would be categorised as a new-style crisis. We do not want to say by this that the economy was fundamentally healthy between 1995 and 1997. Nevertheless, significant simulation of positive expectations for future developments and covering up some of the problems (i.e. hidden public finance debts) could have helped considerably in lowering the risk premium of the economy in the eyes of foreign investors.

[14] *Per analogia*, though, everything that has been said in relation to the money cycle applies. The difference lies in the origin of the monetary overhang, which we do not find in the domestic economy but in foreign economies.

will also end sooner or later in some form of disequilibrium.[15] However, this new-style crisis is even more risky. While the inflow of money is gradual, outflow could be relatively fast, and negative effects could accumulate at a similar rate.[16] Another complication with a crisis of this type, at the at least beginning, is a reduction in the prudential behaviour of investors. These investors bring capital to the country in good faith, because they are entering a fundamentally healthy economy with a very optimistic outlook, and many times (as in the case of Thailand) their prudential behaviour threshold is lowered by a fixed exchange rate promising a safe return on investments without the risk of depreciation due to exchange rate changes. Very often, a crisis of responsibility occurs, where investors as well as banks in the target investment countries leave their exchange positions insecure, which in turn, increases the costs of the crisis in the case of a sudden outflow of capital or exchange rate crisis.

We can conclude that the new-style crisis does not differ from the old-style when looking at the actual outcome, though the catalysts are not changes in the money supply inside the economy but the movement of money to and from the outside world. We could say that the money supply is *super-exogenous*, completely out of the control of domestic monetary authorities. These authorities can either increase or decrease the problem by the choice of an exchange rate regime. The new type of crisis occurs in the private sector, and the private sector also feels the impact the most. It is clear that the East Asian crisis, like the Mexican crisis before that, was a new-style crisis. The Japanese crisis, though, cannot be included in this category. The roots of their problems stemmed from monetary expansion in the mid-1980s, which gave rise to sharp monetary restriction at the beginning of the 1990s (see also Chapter 3.4).

Whether we are talking about a new- or old-style crisis, both always result in destabilisation of the banking sector, which is logically the first sounding board for a financial crisis. A systematic banking crisis that is an inherent feature of the money cycle indicates a failure of the process of banking and financial intermediation,

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[15] In the case of the Asian crisis, this was mainly an imbalance in the current account followed by pressure on the exchange rate.

according to Macfarlane, which could in turn lead to debt-deflation, as described by Fisher (1933).[17] The banks' unwillingness to lend, their efforts to dispose of real estate, followed by a drop in the prices of these assets and the preference of safe trading with government securities, is not by any means unexpected, but on the contrary, a very logical development within the whole money and credit cycle and the financial crisis to follow. O'Brien and Brown (1992) describe this situation in detail in their study on credit contraction in the USA at the beginning of the 1990s. According to these authors, borrowers' extremely restricted access to loans was the common catalyst for the recession at that time. According to the authors, the reason for this was i) the *mandatory prudential behaviour of banks*, i.e. banking supervision registered a rise in problems with the balance sheets of banks and, as a result, tried to prevent this from deteriorating even further by making lending rules stricter and ii) *the voluntary prudential behaviour of banks*, i.e. where financial institutions opted for safe trading and transferred the majority of their trading to government securities. They wanted to logically rebuild their portfolios by changing over to very safe loans.

All of these crises had similar characteristics. Macfarlane clearly identified some of the features typical for the first phase of credit expansion:

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[16] For a complete picture, one of the logical outcomes of capital outflow is a rise in interest rates by which the central bank tries to curtail money outflow and also balance savings and investment in the economy.

[17] The most famous case of the impact of a financial crisis on the banking sector is the Great Depression in the USA during the 1930s. The ignition mechanism of this crisis was the plummet of share prices on the stock exchange. The anatomy of the crisis is then very similar to what happened in the East Asian economies. The drop in share prices had an immediate impact on the balance sheets of commercial banks holding securities in their portfolios, and those trading and speculating like ordinary market brokers. The sharp drop in the prices of shares was also reflected with the same intensity in a drop in the returns on securities throughout the whole banking sector and in a fall in the value of banking assets. The succession of events to follow is very quick. In a moment of panic on the capital market, all participants, led by banks, first try to sell the remaining securities and to maintain liquidity in order to save at least some of their resources against the expected bad economic outcome. Logically, then, all market players join the band-wagon and sell off their shares. Prices drop even further, and the stock index finally collapses. Banks are aware of their worsening financial position and expect losses from trading in securities and equity interest. In anticipation of the loss, they logically opt for liquidity and try to sell off other assets to recover cash. Like the banks, all financial institutions begin to behave in the same manner. At first, they start rapidly selling off real estate, which is followed by a fall in prices on the real estate market.

1. Lending to related parties.
2. Excessive concentration of lending on particular borrowers or areas.
3. The size of loans was based more on asset value, rather than capacity to service from income.
4. Failure to recognise and provide for deterioration in loan quality.

All of these factors can lower the prudential behaviour of banks, especially in the case of excessive capital inflow from outside and relative easing of the budget constraints of banks. Unfortunately, the outcome of these financial crises is also similar. Revitalisation costs for the banking sector after the outbreak of a financial crisis are huge in all countries and, in the end, the majority of them are paid through government funds.[18]

[18] The costs for restructuring about 700 savings & loan institutions in the USA amounted to more than USD 280 billion between 1988 and 1992. After the financial crises in Scandinavia, the costs for recapitalising banks were also high (Finland 8% GDP, Sweden 6% GDP and Norway 4% GDP).

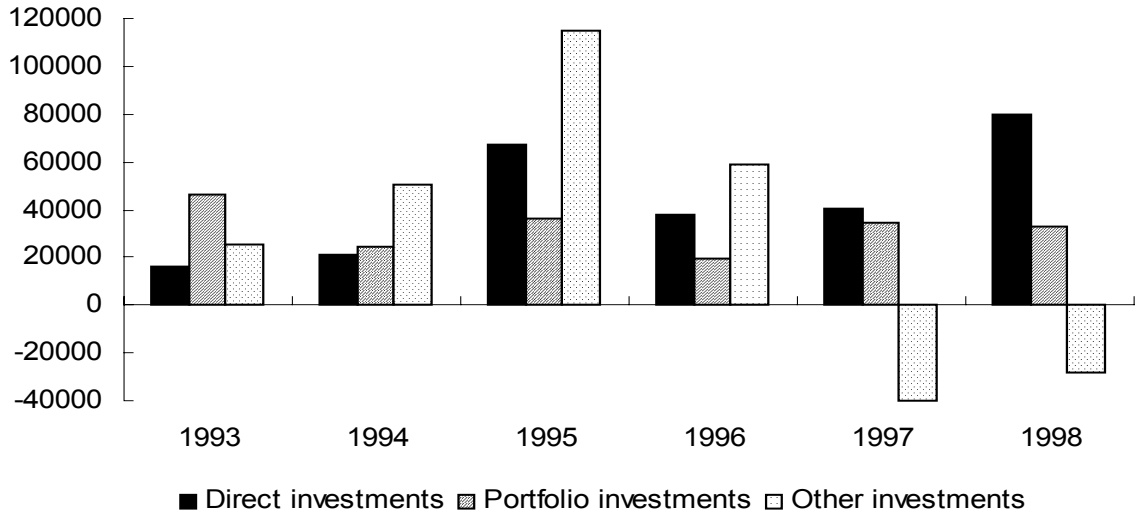
3 The credit market in the Czech Republic

It is clear that much of what has been said about the character of financial crises, the relationship to monetary policy and especially the impact of financial crises on lending and the banking sector reflect the reality of the Czech economy. It can be said that the largest rises in M2 (1994–1995) (Chart 3) are closely correlated to the period of strong foreign capital inflow to the Czech Republic (Chart 5) with a fixed exchange rate regime and during a period when positive expectations for the future economic outlook were prevalent.[19] In addition, this period is associated with the largest increases in real GDP that have been recorded since the beginning of the transition period. We can, therefore, formulate a theory that the Czech economy has gone through the first and second phase of the money and credit cycle connected with stimulating real economic activity through a higher money supply, a prolonged time structure for production and easing budget constraints for commercial banks, which was, for the most part, not created by the internal economy, but by the super-exogenous inflow of foreign resources to the economy.

[19] For more about the non-autonomy of the money supply during capital inflow and a fixed exchange rate, see Frait (1996).

Chart 5

Inflow of foreign investment (CZK billion)



Source: CNB

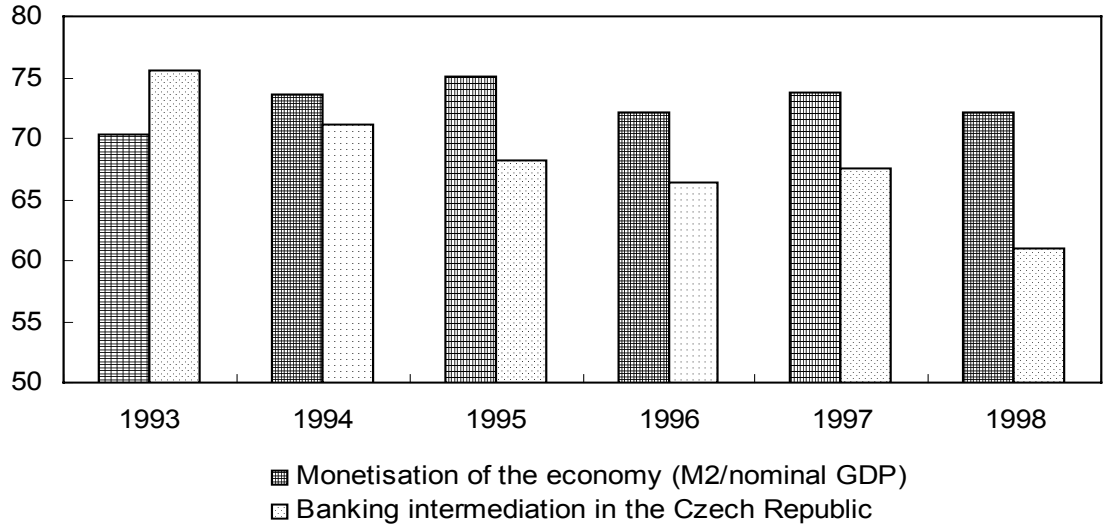
The phases of the cycle, their course and outcome correspond to the theoretical conclusions. After a period of expansion, an imbalance began to appear that, as we know from the works of Mundell (1996) or Frenkel (1976), does not necessarily show up in a small, open economy as an internal imbalance, but rather as an external imbalance. The economic policy response to this imbalance, i.e. reducing government spending and raising interest rates, caused the second contraction phase of the cycle. One of the outcomes of this situation is finding a new equilibrium in the credit market connected to banks' reduced willingness to lend, as well as to cumulating problems in the balance sheets of commercial banks and related difficulties in the business sector connected to bank loans, as we will show later.

As we have already mentioned, the more serious the difficulties during a period of credit contraction, the more the business sector is dependent on bank credits. In comparison to other countries, the level of banking intermediation in the Czech Republic is high (though gradually decreasing), so that theoretically, this indicator should measure the level of development of the economy's financial system. However, we rather combine this fact with the problem of overborrowing, reasons for which will be analysed in detail below. Even so, monetisation of the economy, i.e. M2's share in nominal GDP, is relatively high compared to foreign

countries (see below). Chart 6 documents both of these variables. This means that a relatively strong impact of changes in the credit cycle on overall economic output can be expected in the Czech Republic. The question is, of course, to what extent can this process positively or negatively affect the non-standard features of transitional conditions in the domestic economy. Some authors, like Singer (1999) for example, claim that the chosen method of privatisation in the Czech Republic and the process of privatisation alone (struggle for a majority in companies) contributed to the overvaluation of corporate assets in the first phase of transition. This overvaluation of assets in the form of real estate or securities was ultimately used as collateral for the companies' loans, and during privatisation, this fortified sum was added to the balance sheets of banks. This of course means a great burden for banks when the prices of assets begin to shift downward to a new equilibrium.

Chart 6

Monetisation of the economy and banking intermediation in the Czech Republic (%)

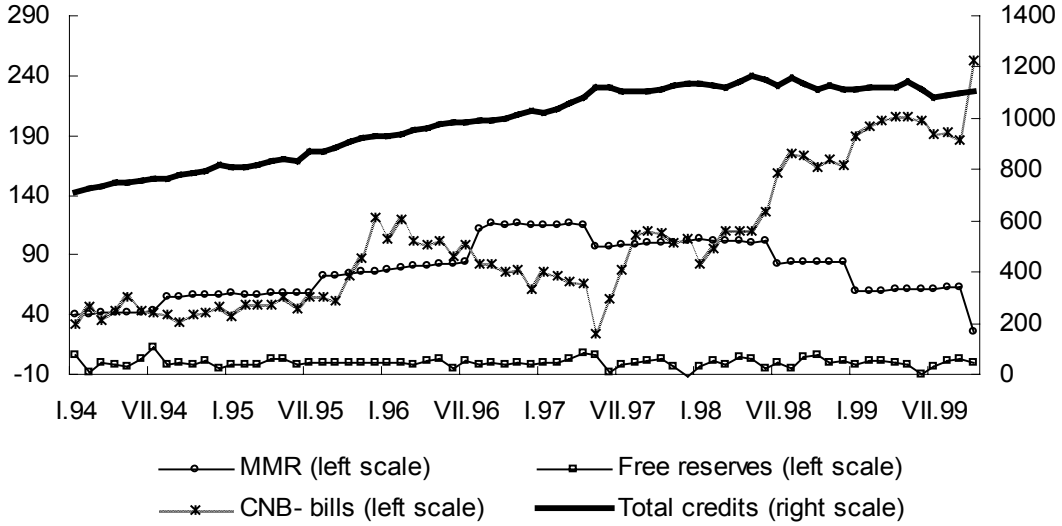


Source: CNB and CSO

With the knowledge of banking intermediation in the Czech Republic, it is no surprise that after the monetary turbulence of 1997, banking sector behaviour in reaction to the financial situation resembles other economies. The transition to a new equilibrium on the asset market is the same as, for example, in Southeast Asia at the end of the 1990s or in the USA at the beginning of the 1990s. This was connected with more prudential (in fact, significantly lower) lending, and replacing credit

transactions with safe trading in government securities, which is a logical reaction to the change in the relative return on business projects (see Chart 7).

Chart 7
CNB bills, reserve requirements, free reserves and total credits (CZK billion)



Source: CNB

3.1 The supply side of the credit market – the banking system

The suggested general framework of considerations on cyclical credit contraction in the Czech Republic allows us to more carefully examine the causes of the decline in lending, i.e. whether it was caused by gradual changes or abrupt changes in the banking sector alone. Aside from the credit cycle already discussed, the analysis is also supported by the recent findings of theoretical/empirical studies which can be classified into three wider groups with supply-side factors as the common denominator.

The first group represents a study examining the effects of credit generation in connection with the problem of asymmetric information and moral hazards, including the problem of bank credit rationing and risk aversion, see Bacon and Wessel (1991) and Hancock and Wilcox (1993). The second group comprises a study analysing the limited credit activity of banks caused by a lack of capital adequacy, a high volume of

classified loans and new regulatory measures, see Baer and McElravey (1994), Bernanke and Lown (1991) and Peek and Rosengren (1995a, 1995b). The last group integrates factors reflecting the strategy (willingness) of banks to lend, see Owens and Schreft (1993) and Greenspan (1991).

3.1.1 The high level of banking intermediation in the Czech Republic

If there is a higher-than-average level of risk and uncertainty in the economy, which is typical for the Czech economy, then commercial bank activities should allocate a less-than-optimal amount of credit resources to the economy. In order to explain the different behaviour of the Czech banking system in comparison to other transition economies in central and eastern Europe, it is important to identify the specific features of Czech economic transition, including the financial market. Special attention in the analysis will be given to the genesis of the Czech banking sector.

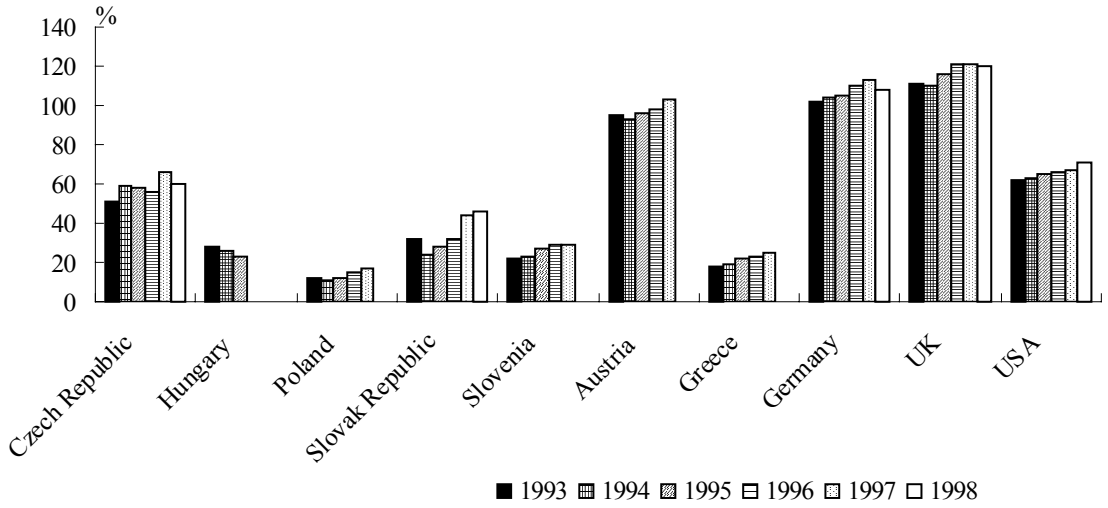
From the very beginning of the transition period, the banking sector has been the economy's dominant financial channel. This dominant status was built on four factors: a stable macroeconomic environment, the non-existence or the inefficiency and non-transparency of the capital market, the method of privatisation chosen and, finally, the type of banking system – i.e. a universal system. The Czech economy, just as other transitional economies, was affected in the first phase of transition by latent macroeconomic destabilisation that in some of the countries had ended in hyperinflation induced by a monetary overhang and fiscal freedom. Restrictive monetary and fiscal policy successfully offset latent macroeconomic instability in the Czech Republic. The relatively stable, low inflation environment guarded against depreciation of bank assets and the erosion of savings. Banks were not forced to re-evaluate their credit strategy, and households did not have to sacrifice their savings for other hedge inflation products. On the other hand, the stable environment did not put sufficient pressure on the microsphere for finding alternative sources of financing.[20] Currency devaluation at the beginning of the 1990s created conditions

[20] This was completely different than the situation in Poland, Hungary and other countries where high inflation caused credit contraction and companies were forced to reassess their financing strategies.

that significantly helped the microsphere orient itself to the new market; however, it did not create any incentives for needed restructuring. In addition, this environment did not stimulate rapid development of the capital market, including creation of a regulatory framework as a building block for a transparent and credible environment.

Chart 8

Ratio credits to GDP (%)



Source: IMF

An economic system with a high level of information asymmetry and an inefficient legal system that lacks satisfactory sanction instruments for concluding contracts is destined to create an environment in which the banking sector develops faster than the capital market.[21] The dependency of the business sector on credits led to a situation in which the Czech economy had shown symptoms of overborrowing and overindebtedness. The supporting argument for a higher level of monetisation, or financial intermediation is comparable to other transitional

[21] This channel of excessive banking intermediation growth is highly dependent on the level of prudential behaviour of the bank's shareholders in decision-making matters. The ownership structure of the banking sector based on the government as the main shareholder that does not have the same level of prudential behaviour as a private owner inevitably creates a systematic tendency towards a higher rate of lending and to a greater extent than would be in other institutional arrangements.

economies (see Charts 6 and 8).[22] For example, the level of banking intermediation in the Czech Republic is as much as two times higher than that of neighbouring countries. Hungary registered credits to GDP of around 27%, Poland 25% and Russia, in fact, registered not quite 10%. It can be denied that the indicator of banking intermediation itself does not tell us much more than that the banking sector is highly involved in the business sector. The only indication present is a higher likelihood of problems in the banking sector if there is a systems breakdown in the business sector. However, in the text to follow, we will confirm our theory of overborrowing in the economy.

We will try to find out how this could have happened in a transitional economy that registers a variety of system defects as well as a high level of information asymmetry for stimulating real economic activity through the credit channel and for overborrowing. We can very generally conclude that banks react to demand for credit in two basic ways.[23] The first way, *credit rationing*, relies on the traditional model of supplying the economy with credit based on the imperfect and asymmetric information between the creditor and the borrower and the incomplete contract, which is a situation where the creditor is not capable of controlling all the behavioural aspects of the debtor. According to Stiglitz-Weissova (1981)[24], the model of decision-making and bank behaviour can lead to less-than-optimal lending in the case of projects with the same profit-making capabilities, but with various levels of risk which banks are not able to differentiate. The supporting pillar of this model is the impact of interest rates on credit risk. It is assumed that debtors willing to pay higher interest rates probably belong to a higher risk group. This is a classical example of adverse selection where the willingness of debtors to pay higher interest rates is positively correlated to the higher likelihood of not fulfilling the credit contract. In the light of the concept of credit rationing based on the imperfect and asymmetric information

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[22] A careful reader would notice clear quantitative differences for the outlook of banking intermediation in the Czech Republic in the two charts. This is because of the different calculation method used by the IMF and the author of this study. The development of banking intermediation is nonetheless the same for both of the methods.

[23] Another form of credit rationing stems from the situation where the price does not eliminate unsuitable borrowers from the credit market, i.e. in the case of regulation of the interest rate ceiling, credit restraints, etc. Davis (1992).

[24] This definition is identical to the definition in Jaffe and Stiglitz (1990), where, among other things, the balance between the supply and demand for credit is taken for granted.

between debtors and creditors mentioned above, overborrowing should not occur in the case of the Czech economy, but rather the complete opposite.

Another way to create an equilibrium on the credit market is based on price rationing.[25] The behaviour of banks and potential debtors in the process of lending affects changes in interest rates and collateral requirements. An increase in interest rates and the price of bank guarantees, in an otherwise unchanged environment, leads to an increase in the number of loan applicants from higher risk categories. Guarantees provided to debtors for bank loans could create false satisfaction at banks for securing the loans in the case of incomplete contracts. In addition, banks are even willing to satisfy ineffective demand (see Chapter 2.3). In the case of incomplete contracts, banks are faced with a dilemma. Although collateral covers the value of the loan, disposition of the collateral is problematic and the bank must cope with liquidity problems. However, a more dramatic situation (typical for the Czech banking sector) is that collateral does not cover even the value of the principal, nor can it be in any way realised. The stimulus leading to reduced credit activity is the sudden reduction in the price of collateral guarantees in connection with not being able to dispose of the collateral.

The situation in the Czech Republic was similar to the East Asian economies, as described by Krugman (1998). The banking sector is not capable of effectively allocating rare resources to the economy, i.e. the volume of resources exceeds the capacity of the business sector in relation to its performance. The expansive lending policy of banks supports inflationary pressures – not the prices of goods, but the prices of assets. The growth rate of credits backed by collateral, i.e. real estate, was not based on the real profitability of investment projects. Evidence of this in the Czech economy is the disproportionately high share of not only classified loans in total credits, but also loss loans in the portfolios of commercial banks. The Czech economy registers a relatively high volume of investment to GDP – about 30%, but the productivity of these investments is low compared to other transitional

[25] Not to mention the information problem

economies.[26] A narrowed form of the analysis of effective credit allocation for the economy could also be the incremental capital output ratio (see Table 1 below).

Another argument supporting our theory of business sector overindebtedness in the sense of exceeding the absorption capacity is that a company's low efficiency prevents fulfilling the credit contract at the negotiated price terms (see Chapter 3.3 and Table 1 to 5 in the Appendix). The dominant position of the banking sector in comparison to the capital market caused an increase in demand for credit and disequilibrium on the credit market. With a universal banking system, where the creditor sinks costs in order to establish a close relationship with the debtor, it is clear that closing the credit channel when their financial position worsens could be fatal for both sides. As long as the capital market functions properly, then the creditor can lend significantly less. The possibility of closing the credit channel becomes more credible, and, in turn, overborrowing is less likely to happen (Dewatripoint and Maskin, 1995).

Table 1

Incremental capital output ratio*)

	Czech Republic	Poland	Hungary
1994	1.43	0.78	0.45
1995	2.21	0.87	0.63
1996	2.75	0.92	0.90
1997	2.76	n.a.	n.a.
Average	2.29	0.85	0.60

Source: OECD

*) Incremental capital-output ratio - ICOR
$ICOR_t = Investment_{t-1} / [GDP_t - GDP_{t-1}]$

It is, therefore, clear that the only possible way to effectively allocate credit is to correctly calibrate credit rationing. Typical credit rationing can be applied in particular to those markets where loan repayment is not sufficiently or legally enforced or where costs connected to not fulfilling a contract, i.e. a loan that is not paid on, are lower than the usual risk level. As we will show in Chapter 3.1.3, credit rationing for large partially state-owned institutions does not exist in the majority of cases.

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[26] The low level for this indicator could be due to a number of factors. One of the most frequent arguments for this low level is that part of these investments were ecological in nature, or that investments were significantly concentrated (see OECD 1998, p. 58).

3.1.2 Credit contraction in the Czech Republic: Who caused it?

Since the beginning of the transformation period, the Czech banking sector has functioned in a universal fashion with a high level of concentration. The four largest banks (Komerční banka, Česká spořitelna, Investiční a poštovní banka and Československá obchodní banka) have a 66% share of the market measured by asset volume. The government owned these banks by way of the National Property Fund. ČS and KB are still state-owned. The high concentration is not specific to the Czech banking industry. Nevertheless, what is specific is the low level of efficiency. These banks are extremely below the efficiency frontier in comparison to European banks of the same size. A particular role as a part of the Czech banking system is played by the sector of small and medium-size banks. After rapid expansion of this sector in the first half of the 1990s, they were gradually eliminated from the banking sector. Nineteen small and medium-size domestic banks out of twenty-two were forced to terminate their activities or to merge with other banks. Even though this group's share of the market was marginal, measured by the share of assets in total assets[27], these banks provided financing for new small and medium-size businesses.[28]

Another group within the banking sector is foreign banks. This particular group was not extremely active on the market at the beginning of transition. Their share was not more than 5%. As of 1996, foreign banks markedly increased their share on the market, attaining a 20% share of total assets. The increase in the activities of foreign banks had a double-barrel effect. First of all, these banks brought a substantial amount of knowledge and experience to the Czech Republic. However, the slow but sure establishment of these banks caused domestic banks to lose their preferential clients. Foreign banks are capable of offering these companies more advantageous interest terms and other client services. Their increased activity caused the group of low risk clients to shrink. For this reason, banks could react by increasing the credit activities for their current clients and also by creating

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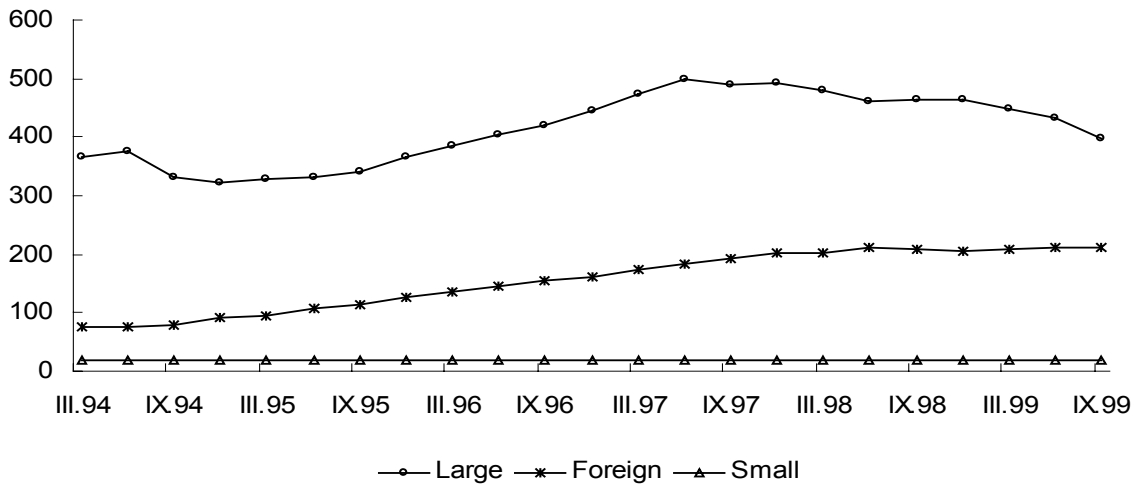
[27] Their share of the market was 3.6% in 1998.

[28] Not taking into account the assessment of this banking segment as a part of the banking sector. We want to show only that these banks actually existed and provided transmission activities, even if disputable in some cases.

a “guarantee” for close cooperation. The activity of this group was very low at the beginning of transition. Foreign banks, for the most part, took care of their “own clients”, i.e. foreign companies getting started in the Czech economy. The domestic business sector’s monitoring costs for these institutions were extremely high. As time went by and as more knowledge about the domestic environment was obtained, monitoring costs were reduced, and therefore, an increase in foreign bank activities in the area of domestic companies could also be seen.

Chart 9

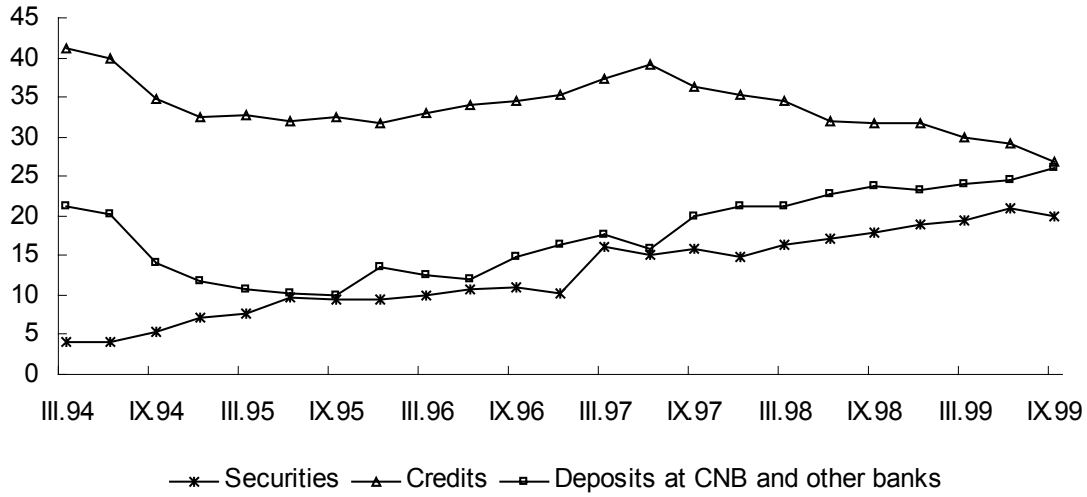
Client credits by banking group (CZK billion)



Source: CNB

Chart 10

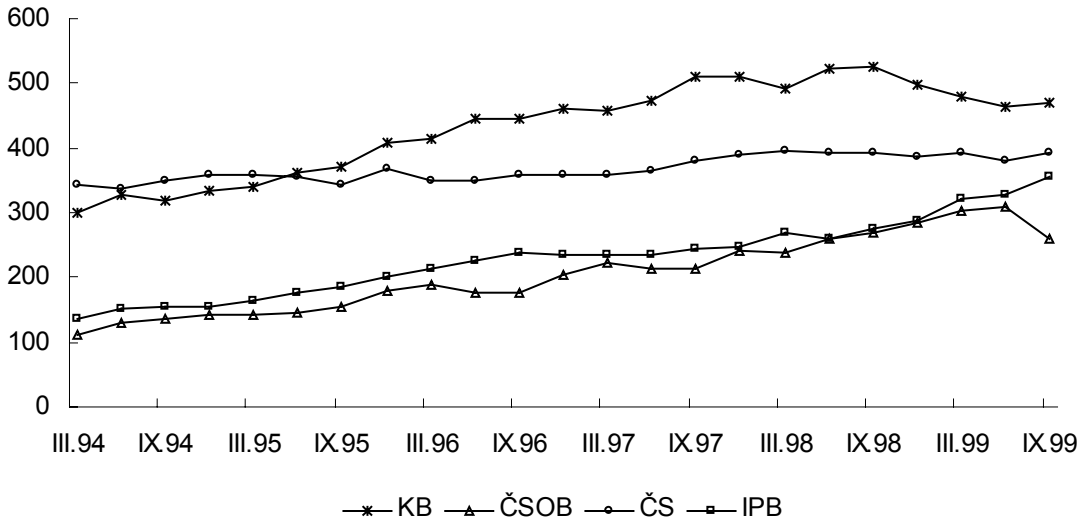
Share of securities, client credits and deposits at the CNB and at other banks in total assets (group of large banks) (%)



Source: CNB

Chart 11

Total assets- large banks (CZK billion)



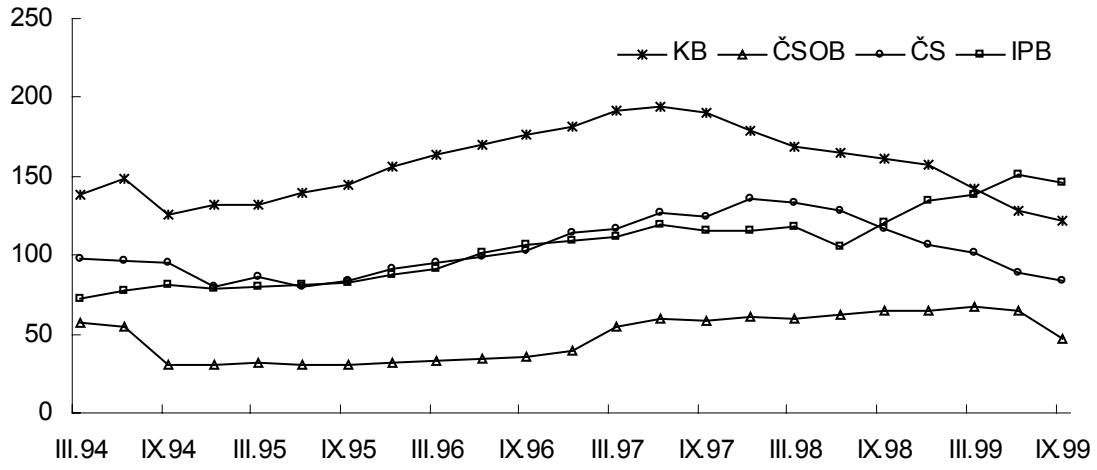
Source: CNB

We shall now concentrate on the analysis of lending to the specific banking groups. It is clear from Chart 9 that there was a substantial decline in lending for the group of large banks. However, credit contraction in the group of large banks was not caused by a decline in capital. In Charts 10 and 11, we can see that the drop in lending was offset mainly by a rise in the activities of IPB and ČSOB. Chart 10 shows that the decline in client lending in the group of large banks was replaced by a rise in deposits at other banks, including the CNB. The share of these assets in total assets was very dynamic during the monitored period and reached almost 26%. A similar situation occurred in security trading with an increase of more than five percentage points. It is altogether logical that banks changed their strategies even if the profitability of deposits and credits at other banks, or purchase of treasury bills, is lower in comparison to traditional credits. However, low default risk offset the so-called opportunity costs. Increases in the security portfolios of large banks were, in our opinion, influenced by the forced capitalisation of claims, among other things, i.e. a higher volume of expired securities issued by loan companies.

Further disaggregation of credit activities in the group of large banks (Chart 12) led us to the conclusion that ČS and KB in particular had experienced a significant drop in the nominal volume of standard loans. For this reason, we shall look at the behaviour of these partially state-owned banks in the next section.

Chart 12

Standard credits- large banks (CZK billion)



Source: CNB

3.1.3 The troublemakers of Czech banking – Komerční banka and Česká spořitelna

As seen in Charts 10 and 11, KB and ČS reduced their nominal volume of total assets during the monitored period. In the case of KB, total assets fell by 4.8% in the first half of 1999, i.e. by CZK 20.4 billion. Of this amount, the drop in client credits amounted to CZK 9.3 billion, and the security portfolio fell by CZK 4.3 billion. The decline in credits was more than proportionately offset by the rise in credits and deposits at the CNB and banks, especially foreign banks.

Table 2

Real growth in lending (%)

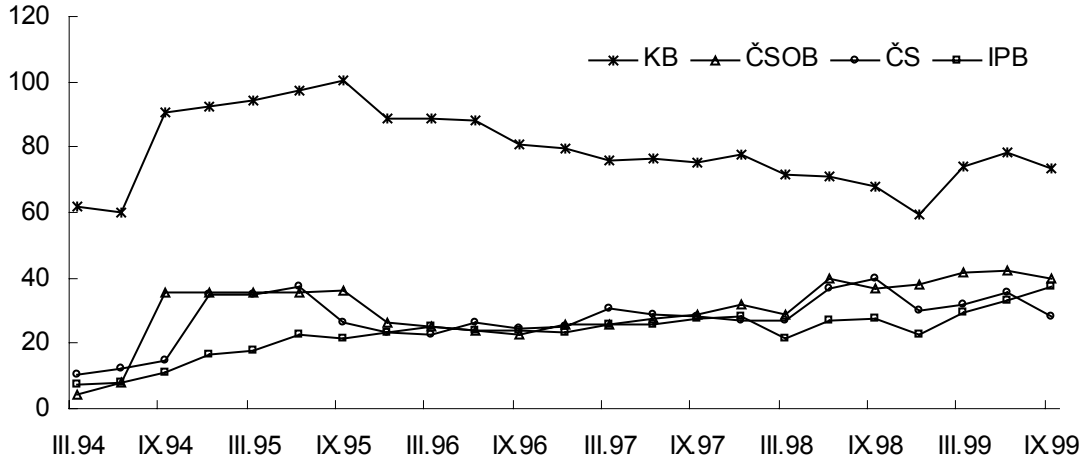
	1996	1997	1998
Československá obchodní banka, a.s.	-4.03	18.17	-13.32
Investiční a Poštovní banka, a.s.	7.95	-0.02	4.62
Komerční banka, a.s.	3.45	-4.13	-21.39
Česká spořitelna	8.99	7.29	-18.96

Pramen: Moody's Investor Service

One of the key factors explaining the sudden deviation of ČS and KB from traditional lending is the quality of their credit portfolios. By taking a quick glance at standard and classified credits (Charts 12 and 13), we could ask how this substantial increase in classified credits could have occurred. The adverse quality of the portfolios of these banks cannot be justified through "past inheritance", because the portfolios of these banks were cleaned up in the first phase of transition. The "salami method" was employed for cleaning up the portfolios from classified credits, i.e. gradual transfer or sale of the classified (loss) loans to Konsolidační banka.

Chart 13

Classified credits- large banks (CZK billion)



Source: CNB

Irrational credit allocation can be explained at a number of levels. The method of privatisation can be considered to be the fundamental cause, where banks were one of the sources of business sector finance.[29] Privatisation using the Czech method, which was financed by bank loans only because of a lack of domestic capital, was a unfortunate step for the Czech economy, i.e. for commercial banks. Bank loans in many cases were not primarily used for restructuring production activities (new technology, machinery equipment, etc.), but the megalomania of

[29] According to available information, the credit volume for privatisation alone was not high – around CZK 20 billion, but the lack of capital for new owners led to gradual accumulation of other loans needed for getting production activities "rolling".

Czech companies encouraged banks to provide loans for further expansion in the form of mergers and acquisition. It can be argued that the process of mergers and acquisition is a phenomenon of the 1990s and a completely standard operation, but in the case of mergers or acquisition of Czech entities, it did not involve taking over functioning companies or companies that were capable of being restructured. Companies that took over other entities did not have a strong capital structure and their competitiveness in many cases was dependent on bank loans. The maturity of the loans were short- to medium-term. The Czech Republic's ratio of short-term loans to long-term loans is precisely the reverse of Germany's. Banks and firms had generated a viscous circle, where acquisition alone could not make production efficient, and companies were faced with the problem of paying principal. One way out, though, was to apply for or provide new loans for paying off "old" claims, which led, in essence, to the classical case of *Ponzi finance*.[30] In addition to this, economic growth and the increasing value of collateral gave banks a false incentive to provide loans and allowed companies to have a high level of financial leverage. The theoretical framework of the problem is discussed in Chapter 2.3 and in Kiyotaki and Moore (1997) and Kiyotaki (1998). In the period of high real interest rates, nevertheless, it was clear to rational entities that only a marginal number of investment aims could attain profits that would guarantee a return on credit.

The unbusinesslike behaviour of banks connected to the moral hazard of "government bankers", especially at KB and ČS, was strengthened by the implicit state guarantee in the form of financial support for covering any financial difficulties that the banks might have. Expectations relied on two doctrines. The bank is *too big to fail* or *too important to fail*, including other factors that provided, if not assurance, then at least hope of financial support, i.e. a bank that is *too loyal to fail*. In the second half of the 1990s, the idiosyncratic behaviour of partially state-owned banks, especially Komerční banka, started to be labelled as financial socialism.[31] This was a reaction to the rapidly deteriorating portfolios at banks and their connection to key domestic companies. Certainly not a less important phenomenon of the Czech

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[30] This situation had occurred many times during the Asian crisis, though to a more extreme degree than in the Czech Republic.

[31] This term was used by Yoshio Suzuki (1986) in the mid-1980s for the troublesome state of the Japanese financial market and the close link between the banking sector and unproductive companies.

banking industry (KS and ČS) was, or still is, that decisions on credit allocation relied more on political calculations than economic calculations. This argument can be given, for example, for the restructuring programme. The privatisation process of ČS and KB is an additional factor of neglect for the change in their behaviour (see Chapter 3.2.1). Also, the top management of KB and ČS, whose primary goal is to be reappointed after the banks are privatised, significantly influences the strategy of the banks.

With this detailed description, it follows that the bad portfolio situation at these banks had to cumulate at a specific period and time and cause changes in their behaviour. The catalyst for changing the behaviour of these banks was the turbulence in May 1997. A sudden rise in interest rates in May 1997 forced banks to reassess their business strategies and justified allocation of rare resources. Credit activities towards risky entities were reduced, and resources were rechannelled to less risky activities. It is clear that even the top management of the banks understood that investment projects with a real return of 1% is in reality only a bureaucratic illusion for potential investors.

3.2 The supply side – the regulator and his activity

The behaviour of the banking sector, i.e. the behaviour of individual banks, their stability, efficiency and transparency, is an important measure of the maturity of the regulator and the regulator's ability to create an environment supporting the goals mentioned above. Regulation of the banking sector should be understood in its broad macroeconomic and microeconomic sense. Provided that the banking sector is understood as a subsystem of the economic system, then banks, elements of this subsystem that allocate rare resources, affect the system and are an integral part of the whole economic system. This means that the macroeconomic environment influences the financial sector and, in turn, this sector influences the economy as a whole. Understanding the banking sector, i.e. the financial market, in this way leads us to the question: to what extent can the regulatory norms change or influence the behaviour of the regulated entities?

Banking supervision policy cannot succeed without adequate monetary policy and vice versa. Measures that lead to reduction of risk and, in turn, increase the prudential behaviour of banks, influence monetary policy. The banking sector is, therefore, an integral part of the monetary transmission mechanism. On the other hand, the central bank influences the banking sector through its monetary instruments.

Banking supervision applies a wide variety of indicators to the prudential behaviour of banks, e.g. liquidity, capital adequacy and loan classification as well as creation of adequate revisions, and restrictions on credit involvement. For example, a change (rise) in the capital adequacy of banks can lead to stagnation of asset growth, or a decline in growth, which as a result, restricts the flow of money into the economy even in the presence of expanding monetary policy. Banks can also negatively affect the structure of their portfolios. In a period of recession, more strict demands for the creation of provisions and reserves could lead to unwanted credit restriction and a rise in interest rates. In relation to the need to create additional provisions and reserves, banks need to increase the level of disposable resources, which results primarily in a rise in interest rate margins. In other words, banks increase the spread between interest rates for loans and deposits. In extreme cases, this leads to financial disintermediation and to limiting the effectiveness of monetary policy. The worsening structure of bank portfolios also affects the allocation of rare resources when there is a reduction in new lending. A similar negative effect can be caused by the development of a systematic crisis inside the banking sector or within key banks.

The regulator can have a cyclical effect through changing or increasing the prudential rules in a period of economic decline (recession), and for this reason, the regulatory environment and its changes, including the effects on the banking system and the individual banks, must be analysed for the respective period.

3.2.1 Capital deficiency and credit contraction

The link between banking capital regulation, a decline in capital and bank credit contraction is called a *capital crunch*, see Peek and Rosengren (19995a, 1995b), Bernanke and Lown (1991) and Baer and McElravey (1994). Attention, though, is not focused on capital adequacy *per se*, but instead we concentrate on the effect of a change in capital, i.e. the share of assets to capital in bank lending.

Capital adequacy, loosely defined as the ratio of bank capital to risk weighted assets, can be affected by an additional increase in capital, including subordinated debt, or by a change in risk weighted assets, i.e. decreasing the volume of assets and liabilities. The fact that banks react to the problem in the second manner, i.e. restructuring of the risk weighted assets or by reducing them, is completely legitimate. The reason for this involves the problem of asymmetric information and the “lemons problem”. It has been argued that the management of problematic banks does not want to publicise the problems in their credit portfolio. A potential buyer of new shares is completely justified in believing that only a problematic bank would be willing to “water down” the shares of its current holders. On the basis of these expectations, the potential buyer is not willing to purchase the new shares at a normal price, or for a normal yield. For this reason, it follows that the new shares cannot be issued, and the price at which the management wants to issue the shares is different than that of the potential investors. Therefore, the only plausible solution is contraction of bank assets or restructuring of the risk weighted assets.

In the case of ČS and KB, capital adequacy can be achieved by using both methods, i.e. increasing capital or reshuffling assets. Starting in December 1998, ČS and KB transferred a substantial portion of classified or loss loans to Konsolidační banka. They also received a strong capital injection for increasing their capital, so that they could comply with the basic regulatory measures for capital adequacy. As far as ČS is concerned, the bank received a financial injection in the amount of CZK 14.5 billion as of December. In December 1998, ČS held CZK 4 billion for covering the loss loans of failing companies, which was assessed at CZK 10.5 billion, even though ČS covered them for only CZK 6.5 billion. Excluding government support, the decline in capital adequacy is estimated to be 4.4%. In July 1999, the capital position of ČS was increased by CZK 4.5 billion. In November 1999, more loans were transferred to KOB. Although KOB paid CZK 20 billion for the loans, the return was

only expected to be CZK 14 billion. In respect to the record losses of ČS amounting to CZK 9.5 billion for three quarters in 1999, it is more than likely that additional financial injections will be made for the bank. The same level of financial support can be expected for KB. In July, KB sold classified loans worth CZK 23.1 billion to KOB for CZK 13.6 billion. The return on these loans, though, is expected to be in the range of CZK 4.1 billion only. Owing to uncertainties in not complying with capital adequacy requirements, its capital was increased by CZK 9.5 billion.

It is, nevertheless, clear that credit contraction, among other things, was a reaction to the problem of capital adequacy and a poor quality credit portfolio. The current shift of banks from the business sector to more secure operations is the result of the failure of the banking system to effectively carry out debtor supervisory and monitoring activities. The extent of state financial support for these banks since the second half of 1998 justifies the claim that these banks are faced with a serious financial crisis. To understand financial support only as “temporary assistance” before privatisation is not altogether viable.

3.3 Credit contraction of banks and its impact on

3.3.1 The interconnection between banks and companies – pros and cons

On the basis of the *principal-agent* theory, we know that the optimal spread of investment risk, i.e. *first-best*, can be achieved when the *agent* and the *principal* have risk aversion and if there is a limited level of disclosure. The second most optimal solution, i.e. *second-best*, can be attained if the costs of the agent for obtaining information are reduced through disclosure. Disclosing information and making it transparent leads to quasi-optimal allocation, and its effectiveness can be measured for the banking system by, for example, a percentage share of classified loans in total credits.

The advantage of a universal banking system is not only facilitating the supervisory activities of companies from the side of banks, but also the close cooperation between banks and companies. The benefits of this close cooperation mainly involve lowering the information asymmetry between the debtor and the

creditor. In the case of the Czech economy, it seems that this basic feature of a universal banking system was not used, but on the contrary, abused by both sides – banks and companies – in a number of cases.[32] The universal banking system and the crisis ownership of investment funds, companies and banks do not improve a company's management, but only make the situation worse. Effective corporate governance by banks was non-existent, and the accumulated problems, including a rise in classified loans, are dealt with only after a crisis situation has developed in a company. The higher level of disclosure of a company's credit activities is an essential, though not sufficient, condition for closer cooperation.

When banks move away from financing large debtors, they must expect a boomerang effect to develop under standard market conditions. This distancing could have a destructive effect not only on the bank itself, but also on the whole banking sector. The destructive element of credit contraction can be explained in the following way. If there is a company that is financed mainly through bank credit, then it is understandable that any sudden credit contraction would cause unbearable financial difficulties for the company. Provided that the bank, having a relatively high level of credit involvement in the company, stops financing the company, there is a high probability of losing these resources. For this reason, the only solution would be for the bank to push for the company's restructuring, while keeping the credit channel open. It would be misleading to think that the only correct way is to renew the bank's lending activities, but the other extreme, i.e. a sudden contraction of financial resources, could have a more serious effect.

3.3.2 The business sector and its weaknesses

An integral part of an analysis on credit contraction is the examination of its impact on business sector behaviour. Let's first evaluate the situation in industry and construction. As far as overall industry is concerned, the highest volume of lending in nominal terms occurred in May 1997, when the volume of lending for banks operating in the Czech Republic was CZK 361 billion. From that time up to the end of

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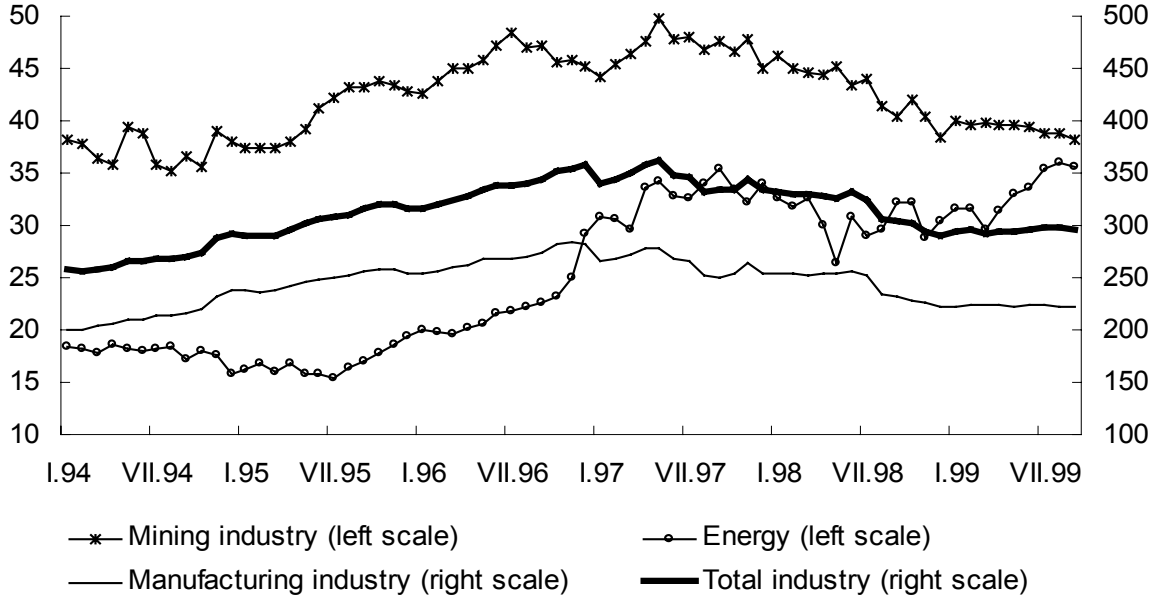
[32] Although we do not have any direct source of information to support our theory, there is an indication that banks required companies to draw on their credits.

September 1999, a decline of CZK 65 billion in the nominal volume of lending had been recorded (Chart 14). It has been shown that the most substantial decline occurred in the manufacturing industry, in absolute as well as real terms. In absolute terms, there was a decline of CZK 55.27 billion, which is a decrease of about 20%. This information has a tendency to be distorted, and therefore for our purposes, it is better to work with the index of year-on-year changes. Even here, though, there were significant changes during the monitored period. Special consideration should be given to the analysis of the overly proportional growth of non-resident lending. There is a clear correlation between the index of year-on-year changes in lending and the index of year-on-year changes in industrial production. Similar conclusions can be made for lending in the construction industry, where there was an absolute drop of CZK 5 billion during the monitored period, and as measured by the index of year-on-year prices, developments here are similar to industry.

Chart 14

Credits in industry and construction (CZK billion)



Source: CNB

Household lending has experienced completely different developments. Provided that there were no methodological changes in the statistics, then the dynamics of household lending is very high. From the first half of 1997 to September 1999, nominal lending had risen by 170 percentage points. One of the explanatory factors involved could be a rise in mortgages. Considering that no demarcation line can be drawn between mortgage loans for households and those for other entities, we have concentrated on mortgages with state assistance. From the first half of 1997 to the end of September 1999, there was a increase of 702 percentage points for these loans, i.e. an increase of CZK 11.1 billion. The increase in household lending was also generated by the introduction of new financial products and reassessment of commercial bank business strategies, which showed that the household sector recorded a low default risk. The rise in loans was influenced by a lack of free financial resources for households to buy essential goods of long-term character.

An increase in the volume of household lending, nevertheless, partially offsets the decline in business lending (small businesses – physical entities). From June 1997 to the end of September 1999, there was an absolute decline of CZK 20.53 billion. It would be misleading to explain this decline as only deterioration of the economic environment. One of the arguments explaining this decline could be the change in the financing of these activities – in other words, less pressure on bank lending. Many of these activities could require a high amount of borrowing when starting a business (purchasing machines and equipment, computer technology, no deductions, etc.). Nevertheless, we should not forget that many of these businesses were forced to terminate their activities or ended on their own free will. We can now conclude that households, including businesses, had not contributed to the fall in credit demand during the period from the first half of 1997 to the end of September 1999 as much as industry and construction had.

In Section 3.1.3, we showed that the key players involved in credit contraction are ČS and KB. Considering that these banks have a more or less dominant position on the credit market, a change in their behaviour logically had an effect on the microsphere. Evidence of this can be seen in the fact that lending activity at ČS and KB is closely correlated to lending in industry.[33] Provided we accept the theory that credit contraction in industry was caused by a change in the demand functions of ČS

[33] Statistical evidence shows that the correlation coefficient was 0.88.

and KB and not by a decline in the demand for credit, which intuition tells us, then the question can be raised whether the reasons for the change in the behaviour of ČS and KB are not the result of a decline in performance or the company's profitability. We will try to confirm or reject this argument with a detailed analysis of the financial position of the individual branches in industry and their credit burden.

The aim of the analysis is to confirm the hypothesis that, even if the performance and financial position of industrial companies during the period of credit contraction were not diametrically different from the previous period, their persistently low values predetermined the necessity of change in the behaviour of the banking sector. We do not have to stress that access to relevant and dependable statistics is still not very reliable, and this is why evaluation of the performance of economic branches must be limited, for the reasons mentioned above, to industry and construction. Another limitation is that we have analysed only companies having more than 100 employees. The financial analysis is supported by a study made by the Ministry of Industry and Trade (MIT).The statistics used are based on data from the CSO and a special study carried out by the MIT. The data set has been created from 1972 industrial companies and is comparable to the CSO's set.

The basic financial indicators used for measuring the production activity of companies are ROA and ROE. As seen in Tables 1 and 2 in the Appendix, these general industrial indicators do not register any significant volatility in comparison to 1996, even though they remain at a very low level. In construction, further deterioration of ROA is evident with the approximate 50% decline from 1996 to the end of 1998, ending at a level of 3.08%. As far as ROE is concerned, this indicator reached an alarming level in 1998 (-5.09%).

Other supporting ratio indicators are bank lending to total liabilities and bank lending to foreign resources (see Tables 7 and 9). With these basic indicators, we can observe the significance of bank lending for maintaining the adequate cash-flow of a company. However, not even here did bank lending cause companies to significantly deviate from financing. For construction, this share remains at approximately the same level in comparison to 1996. Only in 1997 did it decline by two percentage points against 1996.

The monitored indicator that measures financial demands or the credit burden of a company is expressed as the ratio of interest payments to EBIT (Table 8).[34] For industry, the amount has remained virtually the same, i.e. in 1998, it increased only by 0.75 percentage points to 52.35%. The value of this indicator is alarming. Industrial companies on average use up more than half of their generated profit for paying interest. Taxes on profit are around 30%, which leaves only 20% for profit from EBIT. It must be stressed that these amounts are averages only. Table 8 shows that the most burdened sector is the manufacturing industry, and the least burdened is the monopolised energy industry, where the share of interest costs to earnings before taxes is a "mere" 25.59%. This corresponds to our expectations, considering that these branches are the least burdened with credit resources. In relation to the financial difficulties of companies, a rise in intercorporate indebtedness, i.e. obligations after maturity, are given as one of the reasons. However, this argument has not been confirmed, and intercorporate indebtedness has not seen any real changes recently.

The results of the analysis clearly show that on average, companies cannot be capable of paying off their loans, i.e. nominal interest rates are not realistic for them. In order to confirm our theory, we will apply the indicator measuring the maximum interest burden, i.e. the maximum interest rate.[35] From this equation, it follows that the maximum interest burden of companies, i.e. the nominal manageable interest rate, should not have been higher than 7.71% for industry in 1998. For the manufacturing industry, this rate should not have been higher than 3.59%. For construction, there was a faster decline in the maximum interest rate during the monitored period, i.e. from 13.29% in 1996 to 7.41% in 1998. Discussion on the setting or level of interest rates in the Czech Republic is not, by any means, a trivial problem. It would be misleading to argue that low interest rates improve the performance of companies. In our opinion, the high financial leverage of companies caused considerable problems. For example, in Poland or Hungary, real interest rates were far higher than in the Czech Republic.

In Chart 15, which shows total lending, including credits from companies with more than 100 employees, we can see that a drop in lending did not occur. On the

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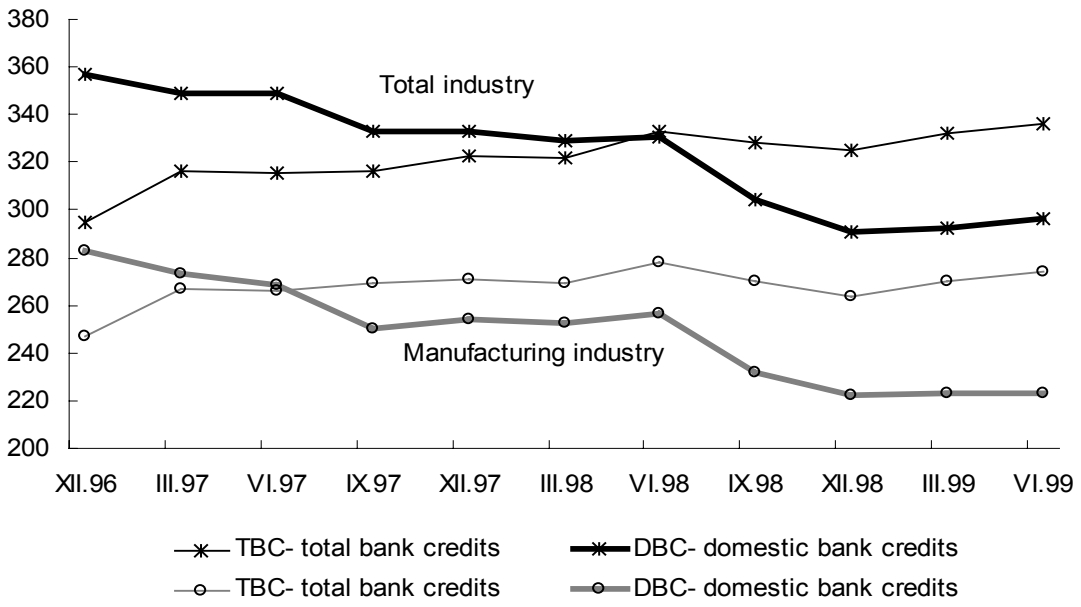
34 EBIT = earnings before interest and taxes.

35 Interest rate = (EBIT/assets)/(equity + bank credits + bonds/assets).

contrary, the opposite trend had developed, i.e. stagnation, and companies with more than 100 employees even received credit resources from abroad. However, with additional disaggregation in the volume of credit, for example, in the manufacturing industry, we see that only a few branches have recorded any increase in credits.

Chart 15

Credits in industry (CZK billion)



Source: CNB, MPO

TBL = loans provided to companies with 100 or more employees

Findings have shown that industrial performance on the whole is below average. The analysis confirms our theory that there were no significant changes in the profitability of industry for 1996–1998. However, the persistently low level of industrial performance, in relation to accumulating problems and the economic cycle, allowed banks to maintain their current level of lending. Chart 15 indirectly confirms another theory that credit contraction tended to affect small and medium-size companies more than larger companies. This corresponds to our expectations that

large banks are strongly linked to the key partially state-owned giants, and the costs of failure of these companies would cause substantial losses.[36]

BOX 1

The main problems affecting partially state-owned banks

Credit burden, ineffective corporate governance and overvaluation of capital

Nine companies[37] were selected to participate in the Revitalisation Programme, set up for improving the adverse conditions of selected companies. During the financial analysis, we identify a common denominator for the problems, any substantial credit burden and ineffective corporate governance. Drawing on large volumes of credit from the banking sector was made possible by the asset bubble that resulted from the overvaluation of the capital of companies. Companies could afford to take out new loans due to overvaluation of their collateral. A textbook example of overvalued capital is Škoda Plzeň. From 1996 to 1998, this company recorded a cumulative loss of CZK 8.067 billion. Lowering the company's capital by 75% from CZK 9.479 billion to CZK 2.369 billion helped to reduce this loss. The company's credit burden for 1998 was CZK 7.3 billion. Its credit burden in 1999 amounted to CZK 4.15 billion, while sales were only CZK 3.8 billion. The company recorded a loss of CZK 359 million in 1999. The company's main creditor was Komerční banka. This bank capitalised the claims, and the acquired share was then sold to Škoda Plzeň, meaning to its main shareholder, Nero. Two characteristic features of the Czech economy can be exemplified in this particular case: the megalomania of domestic companies and the banking sector's inability to successfully implement corporate restructuring. Now the government is a majority shareholder of the company through Česká finanční (17.24%) and Konsolidační banka (43%). These shares were, therefore, transferred back from Škoda Plzeň. Through these operations, the company actually has been sent back in time to 1995 when ownership transfer had

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[36] Losses for banks in the case of failure of large domestic companies would create a snowball effect, where the supply companies for these industrial giants would lose sales. It is for this reason that the present position of large banks, i.e. deciding to prolong credit contracts, could be seen as a rational decision, given the specific circumstances.

[37] Spolana, Vítkovice, Zetor, ZPS Zlín, Škoda Plzeň, ČKD Praha holding, Tatra, TIBA, Alichem.

first started. For another example, let's have a look at the ownership structure of Tatra Kopřivnice. Komerční banka, primarily state-owned, capitalised the loans and sold them to Škoda Plzeň. The bank was experiencing serious financial difficulties and was forced to sell their share in Tatra to ČF and KOB. In the third round, the government once again became the owner of this company.

3.4 Price bubbles and their impact on the Czech economy

Special attention must be given to the theory of price bubbles in market assets and their application to the real economy in the Czech republic. In part 2, we were familiarised with the general mechanisms of how a change in the prices of market assets affect the change in credit contraction for companies. It seems that emerging market economies have an affinity to the development of unbalanced price tendencies for market assets, which contributes mainly to substantial ownership structure changes in a transitional economy that are concentrated into a relatively short period of time. Singer (1999, p. 41) for instance, has convincingly presented this particular theory:

"…I formulate a hypothesis that the combination of privatisation methods in which cash sale and bankruptcy predominates (Hungary, Poland – note M.H. and R.M.)*, leads first of all to underrating of the prices of assets in the economy connected to a sharp drop in output prices and a rise in unemployment. On the other hand, combinations preferring sale on credit in auctions for the highest price and voucher privatisation* (Czech Republic – note M.H. and R.M.)*, lead in advance to overrating of the prices of assets and a fair amount of growth accompanied by low unemployment, after which though the price bubble of asset prices bursts and causes a drop in output and a rise in unemployment…"*

It should be pointed out unfortunately that empirical evidence for the theory of price bubbles is extremely complicated. Empirical evidence for price bubbles, apart from exceptional cases (see Box 2), is very rare even in advanced research, and model testing of price bubbles hardly even exists at all, let alone in transitional economies. The problem mainly involves a substantial lack or unreliability of data. In Czech conditions, for example, reliable data on the development of real estate prices are not available. This information is not even available at the Czech Statistical

Office or through private sources of statistics (the Association of Real Estate Offices). It is also commonly the case for transition economies that information on capital market prices is unreliable, because it is burdened by a systematic error related to unprecedented ownership changes. Ownership transfers can shift the prices of assets on capital markets significantly above or below their fundamental value, and as was indicated by the quotation above, this is connected to the prevailing method of privatisation.

The situation in the area of real estate prices in the Czech Republic is even more complicated. On the basis of certain incomplete information on the prices of real estate[38] it can be argued that within the monitored real estate types, there was a substantial drop in prices in 1997 in comparison to 1996 (by about 10–15%) and in 1998 in comparison with 1997 (by about 15–18%), while up to 1996, according to this information, real estate prices either registered a rising tendency or stagnation.[39] Although the data represent only a very rough estimate of the real situation, they seem to support the hypothesis that the credit contraction of banks was reduced during the given years in proportion to the reduction in collateral prices which were set by the credits up to that time and the collateral prices offered for potential new credits.

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[38] This involves the research agency AIGLE. This agency's analyses, though, do not provide a significant amount of information. They includes only data for former regional seats and do not include the prices for all types of real estate (they include, for example, the prices of commercial leases and building for primarily non-residential and for primarily residential purposes, but on the other hand, do not include the prices of land) and in addition do not have a standardised statistical format.

[39] The data seem to be consistent with the national data of the BIS and IMF (1999) which show that equity prices fell in the Czech Republic between December 1997 and December 1998 by 22%.

BOX 2

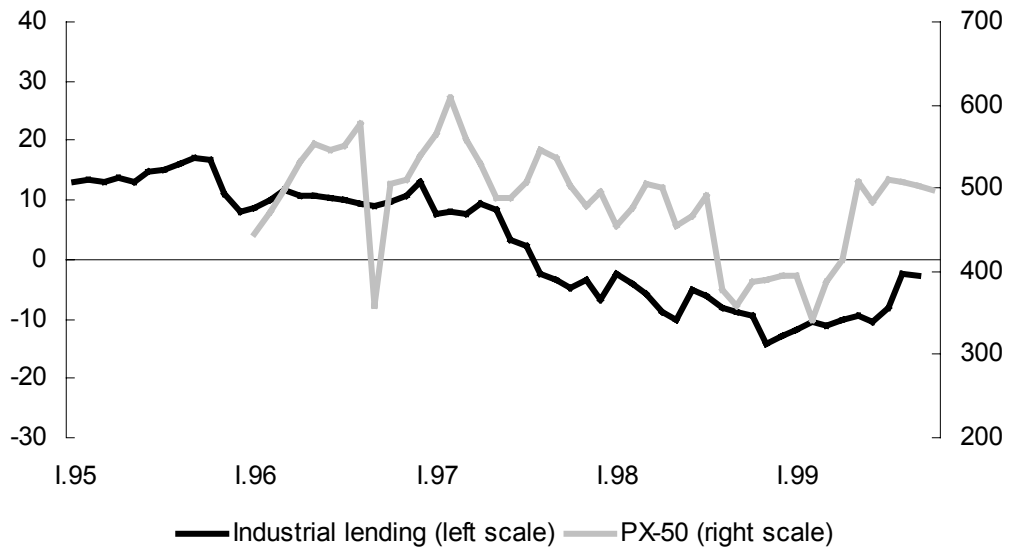
Price Bubble – The Case of Japan

A perfect example of gradual inflation and sudden bursting of the price bubble and the conformity of this process with monetary developments is Japan at the beginning of the 1990s. Fries (1993) takes up this subject in more detail. In 1986–1987, the Japanese central bank cut its key discount rate as many as five times from 5.0% to a final level of 2.5%. In addition, the first liberalisation steps on the banking market had taken place at the same time for more freely setting commercial bank interest rates. After this monetary easing, there was a credit boom. The ratio of credits to nominal GDP rose from 102.2% in 1986 to 127.9% in 1989. The ratio of M2 to nominal GDP for the same period rose from 93.1% to 113.9%. Prices on the stock markets and real estate markets started to sharply rise. Between 1986 and 1989, market capitalisation of the Tokyo Stock Exchange in relation to nominal GDP rose by two-thirds from 0.9% in 1986 to 1.5% in 1989. The key stock index Nikkei also started to dramatically rise in a similar fashion. Against the average 5% growth in previous years, the prices of real estate increased between 1986 and 1989 three times faster, i.e. by about 15% annually. Besides banks, housing loan companies also started to contribute substantially to credit expansion. Securing loans through real estate increased. The rising prices of real estate facilitated further lending on the basis of this type of collateral. The share of loans backed by real estate increased from 40% in 1986 to 63% in 1990. The share of loans to banks for buying real estate also increased (from 16.4% in 1986 to 22% in 1990). At the beginning of 1989, the first signs of unhealthy developments had surfaced. The share of non-performing loans in the portfolios of banks rose to 4.6% from the previous 2%. The central bank decided to deal with the evident overheating of the economy by increasing the discount rate. From May 1989 to August 1990, the discount rate was increased to 6%. This had caused the bubble to suddenly burst, especially on the real estate market. In contrast to the increase of 12.9% in the price of real estate in 1990, there was a drop of –4% in 1991 and –11.4% in 1992. Prices on the stock market also encountered the same fate. Due to the fall of real estate prices, the share of non-performing loans reached a critical level of 7% in 1992. In 1991, there was an economic slump and later in 1992, a long recession. Japan's situation though

represented the typical case of a monetary boom-bust cycle, as mentioned before. An interesting point is the reaction that economic policy had chosen in response to the developments on the credit market. The Ministry of Trade and the central bank first of all had passed the following three measures: i) banks could ignore the lowered value of securities and real estate in their accounts, provided that the market price of the real estate had fallen below the accounting value, i.e. acquisition value, ii) writing off bad receivables as expenses was made easier, iii) the government approved a programme in 1992 for 1.1% of GDP for buying land in order to increase its price.

Chart 16

PX-50 stock index and year-on-year changes in industrial lending (%)



Source: CNB, Prague Stock Exchange

The reduction in the credit contraction of banks can also be understood as an outcome of the drop in security prices. Czech banks used securities to a greater extent as collateral, either directly from the companies receiving the loan or securities of third parties which the loan applicant offered as collateral. According to the theory of price bubbles, we could expect that a drop in stock market prices would be connected with a lower volume of bank lending in the economy and to follow, reducing credit involvement would have an effect on economic performance. Certain support for this hypothesis is given in Chart 16, which documents the relationship between year-on-year changes in industrial lending and the PX-50 index (primarily

industrial enterprises). This chart supports the theory of finding a new equilibrium for asset prices (security prices) that is connected with the reduced relative performance of companies and, therefore, with the logical restriction of bank credit exposure to companies. The price floor for the stock index is covered by a similar lowest negative year-on-year rise in lending.

4 Conclusion

The situation on the Czech credit market during the monitored period was not an extraordinary and typically „Czech“ credit disturbance nor did it involve a *credit crunch* in the textbook sense. A *credit crunch* is a situation where there is a sudden and unexpected change in the credit market without outwardly changing the relevant macroeconomic conditions on the market (interest rates, company performance). This, however, was not the case with the Czech Republic in which a change in macroeconomic conditions did occur. By using the income approach, fiscal and monetary policy had balanced the external disequilibrium. At the same time, monetary policy tried to prevent exchange rate and monetary fluctuations in the macroeconomic framework with high interest rates. It is not just a coincidence that credit contraction occurred in the period following the change in economic policy parameters, but this is a standard reaction to the accumulation of changed macroeconomic and microeconomic conditions and the persisting unfavourable institutional factors.

Due to the existence of collateral, overborrowing, and the setting of the institutional parameters of transition, we can say in simple terms that the overall relationship between the money cycle, financial crisis and credit contraction in the

Czech Republic has taken on a more concrete form that promotes the understanding of credit contraction not as an overall unpredictable situation requiring an extraordinary analytic apparatus, but as an anticipatory process, similar to the processes in the past or present in various economies of the world, e.g. Japan, Southeast Asia, the USA or Scandinavia. This involves a standard process of credit disturbance similar to that following a financial crisis where, due to the shift of asset prices to a new level, the credit contraction of banks in relation to companies is reduced. Due to the reaction to the previous imbalance, caused by the expansive phase of the money cycle, the time structure of production has been shortened, and this affects as well the profitability of projects that have already been financed. This lowers the price of the asset which companies could offer as collateral (reducing the price of their assets as well as the real estate) and on the other hand, increases the value of cash. In this way, the reaction to the imbalance brought on by the previous expansion does not change the primary absolute performance, but first and foremost, the relative performance of companies with the risk of affecting absolute performance in the future. With the help of money cycles, price bubbles in market assets and the institutional conditions of transition can be explained by temporary credit contraction and an economic slump.

In this respect, clear notions emerge that the overall situation after 1997 was only the effect of the institutional problems of transition (problematic privatisation, a bad legal framework). There are also very clear views on the fact that the decline after 1997 was caused exclusively by a change in the macroeconomic and monetary conditions (budget and fiscal restriction). A clearly constructed picture of the rises and falls in the Czech economy in the middle and end of the 1990s can only be created by applying both of these approaches. We can say that the change in the macroeconomic conditions was carried out in a standard way, but the reaction of the economy was way above expectations, especially as a result of the growing presence of suboptimal institutional conditions due to the methods of transformation used in banks and companies.

An interesting conclusion can be made from the analysis of countries that have already experienced credit contraction. The main role of the economic policymaker during credit contraction does not primarily involve finding an optimal setting for interest rates or budget expenditures corresponding to changes in macroconditions. During this period, economic policy must concentrate on a

systematic solution to the accumulated problems in the banking sector, meaning a systematic solution to the problem of non-performing loans. In order to salvage the Czech banking sector, two fundamental conditions should be met simultaneously. It has been shown that optimal allocation of rare resources in a transition economy cannot be achieved in an environment where there is a hybrid ownership structure for financial institutions. There is a wide range of special interests that have priority over the fundamental goals of an economic agent's behaviour, i.e. maximum profit. Nevertheless, changes in the ownership structure must be accompanied by systematically eradicating bad loans from the past by applying clearly established rules. In this way, conditions are created for a new equilibrium on the credit market, while minimising the common, inevitable costs connected to this process. In the case of the Czech banking sector, only one of these conditions had been met during the 1990s: consolidation of the credit portfolios of partially state-owned banks. However, ownership structures were not changed. The first attempt at systematically eradicating the past of banks was, therefore, carried out in vain, because there were no ownership changes to support these efforts. The following ineffective management of the partially state-owned banks brought on by market non-conformity of the ownership structure in connection with the first money cycle process logically clogged the credit channel. It would be misleading to say that the problem occurred only in the banking sector. The study confirms our theory that the high indebtedness of companies with bank loans in combination with the persistent ineffective performance had ultimately led to the problems. Even a marginal decline in company performance, the same as a slight fluctuation in exogenous factors, leads to the companies' inability to pay off bank loans, and eventually even to bankruptcy. An important note from the research based on experience from abroad, especially involving the East Asian economies, is, therefore, also the close connection between the openness of an economy, the exchange rate regime choice, money, and bank portfolios. In other words, the choice of an exchange rate regime in a small, open economy could be the determining factor of change in commercial bank credit contraction and could also affect microeconomic developments more than the economic policymaker might expect.

Commercial bank privatisation seems to be the only solution that would revive the banks' primary functions, i.e. allocation of rare resources to the economy. However, postponing the systematic resolution of the existing problematic loans would lead to

the same mistake as postponing bank privatisation in the first half of the 1990s. A “spill over” of these bad loans to Konsolidační banka would eliminate problematic receivables in the economy worth more than CZK 200 billion. Nevertheless, these receivables would in a sense only be “parked” at KOB. In other words, commercial bank privatisation and the previous clean-up process would unclog the credit channel, but would not solve the problem of non-performing loans at KOB. This would then create a “no-win” situation for state finances as the covert state debt in financial institutions changes into an overt reality. Unblocking the credit portfolios of banks by only relocating the loans would merely contribute to blocking public finances even more.

In conclusion, we can say that according to experience abroad, all other concerns are secondary to the systematic resolution of bank portfolios during a period of credit contraction. Only after this has been achieved can we turn to the medium-term priority of optimising the parameters of fiscal and monetary policy. In other words, efforts to shorten the period of credit contraction depend primarily on the systematic unblocking of bank portfolios. A change in standard economic policy instruments alone would not be enough.

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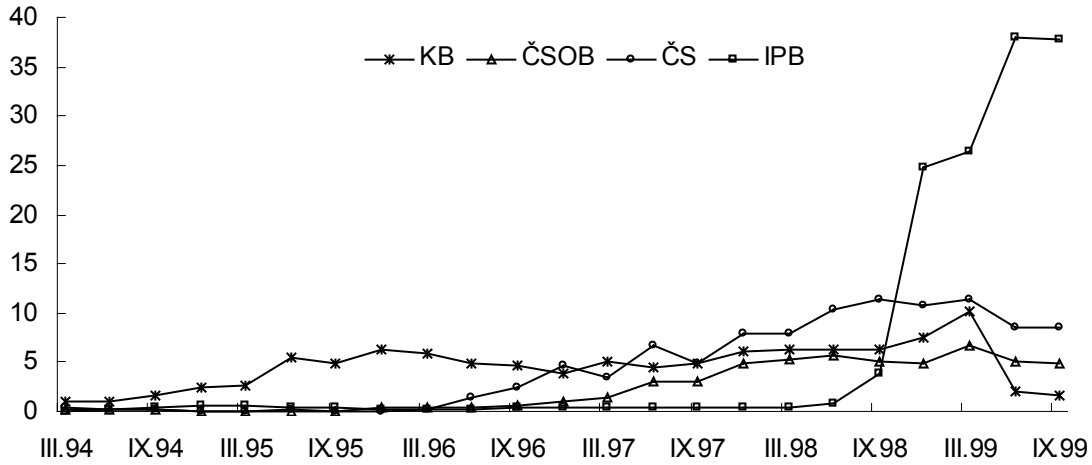
APPENDIX

Chart 17

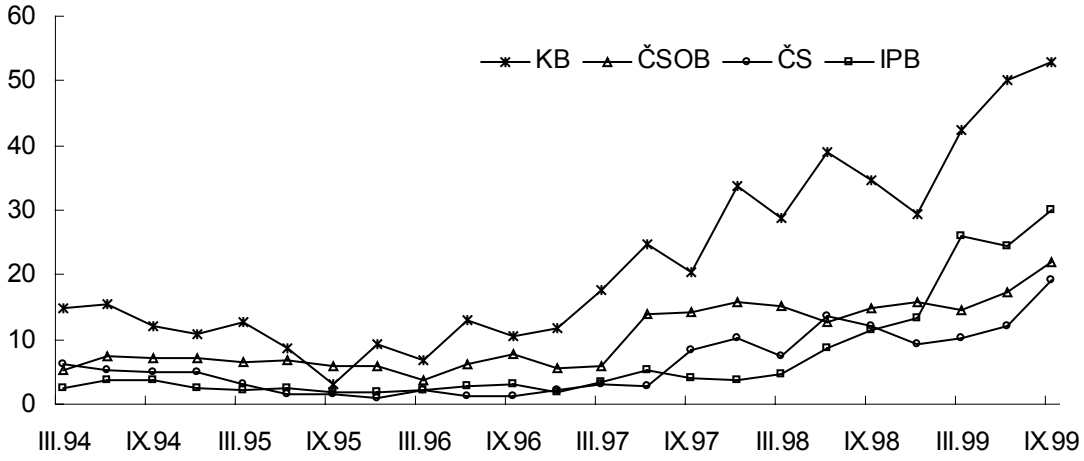
Credits to non-residents (CZK billion)



Source: CNB

Chart 18

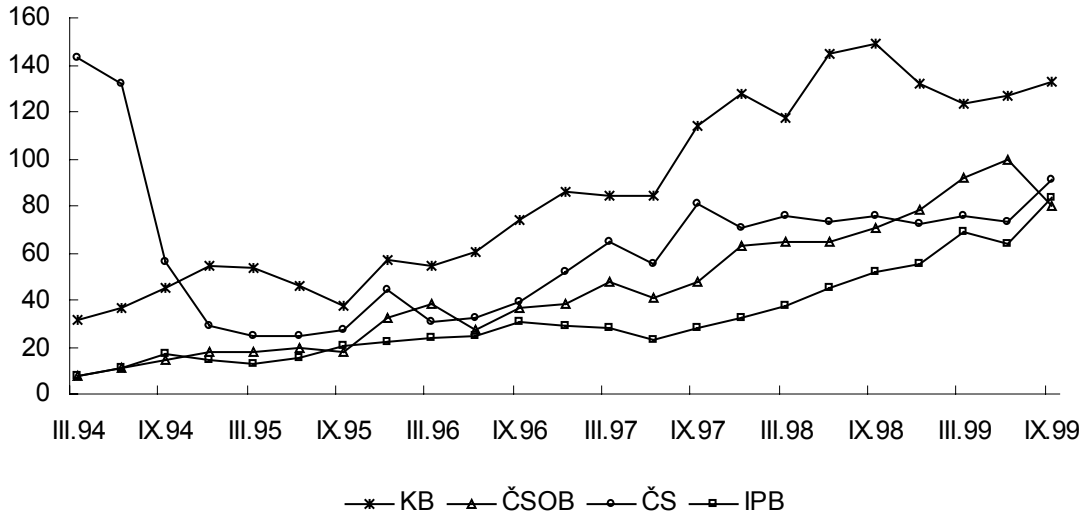
Deposits and credits of non-resident banks (CZK billion)



Source: CNB

Chart 19

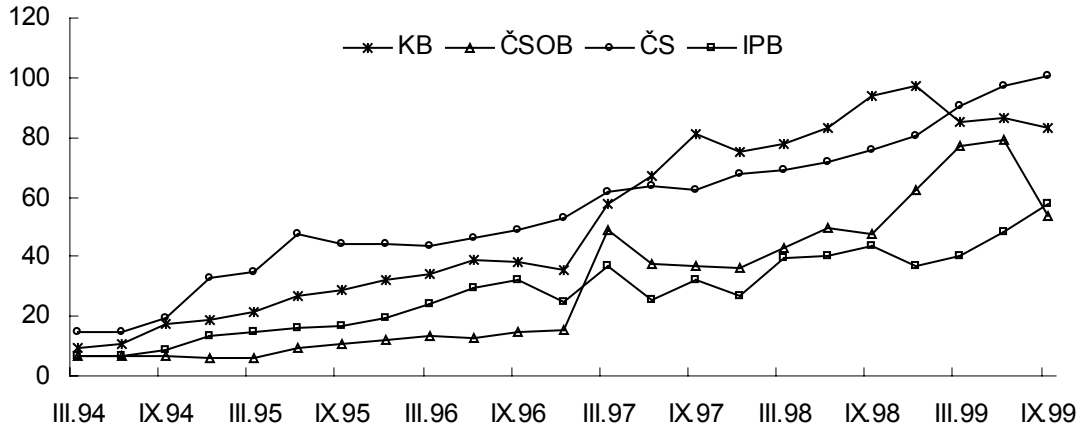
Deposits at the CNB and other banks (CZK billion)



Source: CNB

Chart 20

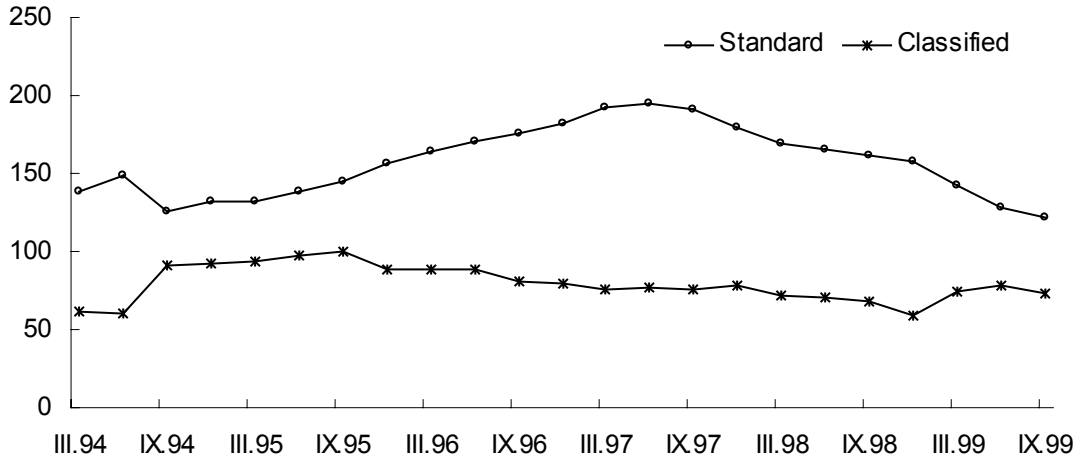
Security portfolios (CZK billion)



Source: CNB

Chart 21

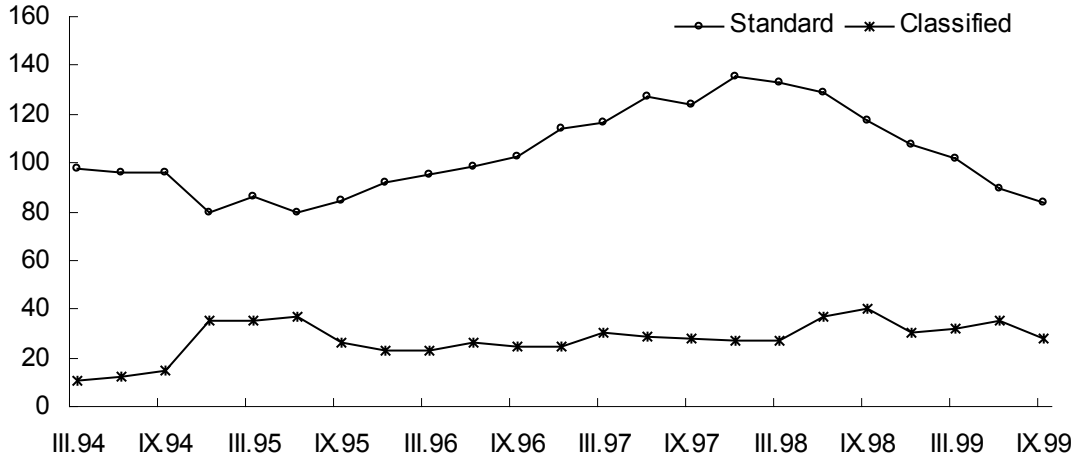
Standard and classified credits- KB (CZK billion)



Source: CNB

Chart 22

Standard and classified credits- ČS (CZK billion)



Source: CNB

Table 1
ROA

	1996	1997	1998
Mining industry	3.54	3.51	2.83
Manufacturing industry	4.74	5.54	5.42
Power	7.61	5.20	5.14
Total industry	5.40	5.31	5.37
Construction	6.00	3.60	3.08

Source: MPO

Table 2
ROE

	1996	1997	1998
Mining industry	1.96	1.87	1.1
Manufacturing industry	-0.68	1.08	0.31
Power	6.35	3.66	4.47
Total industry	1.73	1.96	1.74
Construction	4.49	-1.59	-5.09

Source: MPO

Table 3
Equity capital / assets

	1996	1997	1998
Mining industry	71.63	69.53	66.55
Manufacturing industry	46.65	41.73	41.49
Power	61.23	60.45	59.23
Total industry	52.30	48.28	47.97
Construction	30.33	26.29	26.53

Source: MPO

Table 4
Interest paid / bank credits + bonds

	1996	1997	1998
Mining industry	10.39	11.21	10.41
Manufacturing industry	13.69	13.28	13.74
Power	8.77	10.05	10.24
Total industry	12.77	12.66	12.97
Construction	21.00	17.82	18.34

Source: MPO

Table 5
Maximum interest rate

	1996	1997	1998
Mining industry	4.31	4.35	3.59
Manufacturing industry	6.52	8.27	8.10
Power	10.17	6.95	8.02
Total industry	7.30	7.59	7.71
Construction	13.29	8.99	7.41

Source: MPO

Table 6
Receivables / asset

	1996	1997	1998
Mining industry	10.31	13.02	9.68
Manufacturing industry	21.20	22.99	21.73
Power	9.95	4.38	4.72
Total industry	17.46	17.66	16.38
Construction	29.19	28.54	29.32

Source: MPO

Table 7
Bank loans / liability

	1996	1997	1998
Mining industry	9.32	10.08	11.40
Manufacturing industry	23.25	23.97	23.63
Power	9.61	9.72	10.76
Total industry	19.59	19.45	19.35
Construction	13.39	12.97	14.20

Source: MPO

Table 8
Interest paid / EBIT

	1996	1997	1998
Mining industry	30.87	35.81	45.51
Manufacturing industry	75.22	60.63	64.37
Power	15.65	28.72	25.59
Total industry	51.22	51.60	52.35
Construction	50.11	68.04	89.46

Source: MPO

Table 9
Bank loans / foreign resources

	1996	1997	1998
Mining industry	37.03	36.79	36.73
Manufacturing industry	48.83	43.41	43.38
Power	35.03	36.68	36.44
Total industry	45.39	41.84	41.64
Construction	20.71	18.65	20.45

Source: MPO