DEVELOPMENT OF THE LOAN PORTFOLIO IN 1993 – 2000

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The general rate of credit risk is influenced by the performance of borrowers. Nevertheless, an important factor of the health of credit flows is effectiveness in the allocation of credit. It is not just a realistic assessment of the level of acceptable credit risk that is at stake. Equally important is the degree of accord between the lending terms and actual continuity of the borrower's flows of funds.

A starting point for the following analysis is an assessment of value embodied in loans of a development and/or revitalisation nature. The latter basically ensure that disturbances in the borrowers' flows of funds are surmounted. This means that they are made in response to the business's financial leverage and are not intended for expanded replacement of material flows. Understanding the general role of loans in corporate flows of funds provides the answer to the question as to what extent a loan portfolio facilitates the healthy reproduction of the funds. Or, conversely, the degree of financial distress that the loans can absorb.

One of the principal factors influencing the risk rate of a lending transaction is the impact of the loan on the borrower's working capital (which was briefly described in the closing section of the previous paper). Table 1 comprises information on whether the banking sector contributes towards the growth of working capital through the allocation of credit. Or, in other words, on whether the credit extended helps to stabilise the reproduction of flows of funds.

The extent to which current assets are covered by working capital (WC/CA) should not fall below the level of 30%. This means that for each 1 SKK of current assets, a minimum of 30 haliers of working capital should be available to a borrower. It should be mentioned, however, that the value fluctuating within the interval of <30%, 50%> is considered to be an optimum. A value lower than that presents an increased risk of non-performance of current liabilities. The question may arise as to why an upper limit needs to be posed. That is, why it does not hold true that "the greater the extent to which current assets are covered by working capital (and to a lesser extent the current assets are charged for a short term), the lower the

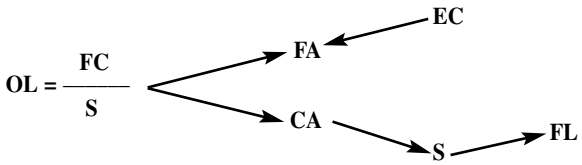


Table 1

Sector/indicator	WC/CA 98 in %	SLO/L 99 in %	WC/CA 99 in %	P/A 99 in hallers	ATT 99 days	SLO/L 2000 in %	CRC–SLO 99 coefficient	CRC–SLO 2000 coefficient
Agriculture, hunting, fishing (1)	24,37	39.7	27.09	–6.90	620	35.0	0.749	0.859
Raw materials extraction (3)	4.08	33.8	–19.47	–0.08	942	56.7	0.665	0.515
Food industry (4)	–4.37	49.1	1.47	–7.19	282	54.1	0.212	0.173
Chemical and pharmaceutical industry (5)	12.92	59.8	–7.63	–7.67	376	62.1	0.125	0.097
Metallurgy and mechanical engineering (6)	–7.43	49.5	–15.29	–6.55	249	49.3	0.387	0.324
Electrical and electronic industry (7)	2.67	49.2	–1.33	–12.06	247	54.1	0.317	0.221
Textile, clothing and leather--making industry (8)	–5.26	41.0	–5.93	–6.83	287	44.4	0.325	0.391
Other industries (9)	–5.58	54.6	–5.02	–11.47	366	49.2	0.345	0.358
Power industry, gas and water supply (10)	20.73	19.3	24.65	–6.21	778	16.0	0.017	0.014
Building and construction (11)	17.64	42.7	14.22	1.02	259	38.3	0.300	0.429
Trade, sales, catering and hotel services (12)	–3.19	57.9	–12.31	1.97	211	55.9	0.317	0.292
Transport, warehousing, tourism and communications (13)	–44.98	36.8	–58.37	–8.37	439	60.0	0.276	0.103
Other activities (14)	3.27	8.5	26.08	–14.61	774	24.8	0.239	0.055
Average	0.83	31.9	0.03	–7.13	361	35.2	0.326	0.217

(The table does not contain any data on sector no. 2 – forestry and timber industry, with its profoundly distinct structure of assets, turnover time, as well as the structure of working capital)
WC = working capital, CA = current assets, L = loans, P = profit, A = assets, SLO = short-term loans, ATT = asset turnover time.

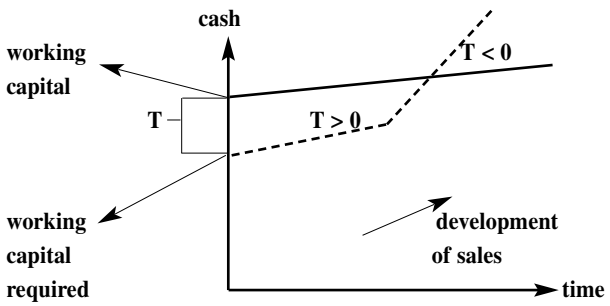
risk". The answer is given by the following illustration, which reflects the impact this indicator has on operational leverage (OL), which was described in the previous paper.

Profit is generated through actual sales (S). Sales are fed into current assets (CA).Current assets also contribute towards the appreciation of fixed assets (FA), where fixed costs (FC) are incurred by the company. An optimum relationship between fixed and current assets (CA) is determined by the company's efficiency threshold. Where the value of WC/CA is high over a long period of time (not including a start-up period), a high level of operational leverage results. The level of sales in relation to fixed costs is low. Subsequently, the return on equity capital (EC), as a major source for funding the fixed assets (FA), is diminished. Exceeding the said 50% level on this indicator may turn out to be non-effective. In such a case current assets are excessively covered by internally generated funds and long-term external capital. This is caused by a low value of current assets and, subsequently, low efficiency of investment, as analysed in the previous paper. The proportion to which current assets are tied to fixed assets is reduced, making it impossible to effectively appreciate them through depreciation charged against sales. This results in increased financial leverage (FL).

The analysis of different relationships, made so far in all the papers, has clearly shown that emphasis is to be laid on the relationship between individual indicators. Assessing them in isolation would create distortions. We have noted low degree to which current assets are tied to fixed assets and subsequently low sales revenue generated by assets. The real value of current assets, however, depends on the return. The return, however, determines the sustainability. Where the return on assets is low, there is a striving to substitute the amount of profit for the profit rate. This leads to an unsustainable increase in current assets. If, in addition, the corporate asset turnover time is long, the real value of working capital declines. And where such assets are funded through short-term loans, the risk inherent in them logically increases. This process of gradual build-up of disruptions in the borrowers' flows of funds is depicted in the following illustration, which reflects one of the possible causes of the borrower's financial crisis[1]:

The symbol T represents the relationship "working capital to working capital required". A positive value in this indicator is a prerequisite for financial stability. The illustration clearly shows that the value of working capital is on the upward trend. Nevertheless, relative to a growing actual requirement for working capital, the increase in sales is not sufficient. The liquidity ratios (quick and current ratio) admittedly are on the rise, but this leads to a more rapid increase in the amount of working capital required.

INCREASING PROPORTION OF CURRENT ASSETS



The above given illustration and a brief analysis of the interrelationship constitute a basis for assessing the development of indicators referred to in Table 1.

• It should be mentioned that, in 1993, the WC/CA ratio for an analysed sample averaged 23.62%. That is to say, it did not even attain the aforementioned standard level of at least 30%. On the contrary, it fell constantly the following years. At the end of 1997 it amounted to only 1.17%. Hence, the undercapitalised corporate sector dependent on loans not only exhibited a shortage of equity, but also of working capital. On the other hand, the legitimate requirement that liquidity parameters be observed by the banking sector, made it impossible to change the age structure of loans in favour of loans with a longer maturity. Moreover, considering the low proportion of performing loans, significant portions of credit funds were drained off through short-term refinancing of credit granted in the past.

• In 1998, the WC/CA ratio fell once again to the level of 0.83%. So lending in 1999 paid scant respect for the marked shortage of working capital on the part of borrowers. Short-term loans accounted for as much as 31.9% of the loan portfolio. This resulted in credit risk coefficient for short-term loans of 0.326 in 1999. For all that, this was a period following the first stage of recovering the loan portfolio through the assignment of bad debt. This led to further decline in working capital of borrowers. The WC/CA ratio fell to 0.03%.

• In 1999, the corporate asset turnover time averaged 361 days. Even so, that year as much as 36.36% of short-term loans were allocated to sectors with the asset turnover time of more than one year. It was therefore logical for short-term loans to be generally risky.

• In 2000, despite the persisting decline in the borrowers' working capital, the share of short-term loans in the loan portfolio increased to 35.2%. The comparison of asset turnover times for individual sectors in 1999, the development of short-term credit exposure by sectors in 2000 and subsequent development of credit risk coefficient for short-term loans in 2000, as outlined in Table 1, all give information on the effectiveness of the allocation of credit by sectors. In other words, they convey information on the match between the lending terms and the actual development of the borrowers' flows of funds. In effect, only two sectors reached a general credit risk rate of less than 0.100[2] in 2000. Even after the second assign-

[1] This is a schematic partially adapted from the publication "Revitalisation Measures in a Company" (Jean-Francois Daigne, 1995).

[2] In the previous papers a mention was made of a specific position of sector "14 – other activities", wherein assigned claims from loans reported as standard claims are included as well. In this way, they heavily distort the resultant value of interest cover.

ment of bad debt, an increased risk rate was recorded in some of the sectors for short-term loans. Even so, as much as 67.48% of short-term loans were made to sectors with a negative aggregate value of working capital in 2000. Where their refinancing is not secured, they do not have a stabilising effect on the continuity of the borrowers' flows of funds.

• It has been noted several times (also in the previous papers) that a constantly declining credit exposure is by and large caused by the performance of the highly levered corporate sector.

The impact of this performance upon the development of working capital is depicted by the following graphic representation:

LOSSES LEADING TO THE REDUCTION OF EQUITY CAPITAL

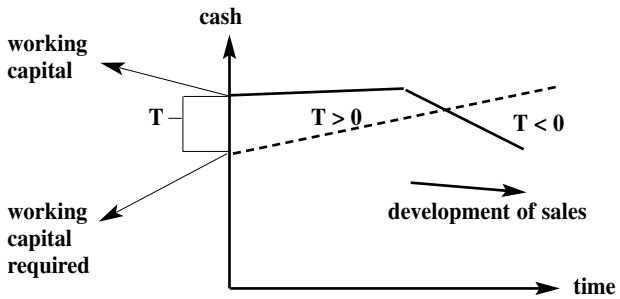
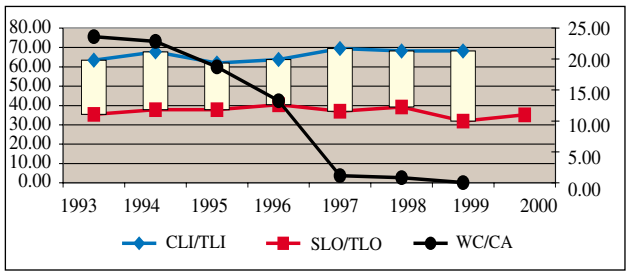


Table 1 contains information on how many sectors exhibited a negative return on assets (profit/assets = ROA) at the aggregate level[3]. The aggregate value of the borrowers' working capital constantly continues to decline. This is for the most part caused by a decrease in sales revenue generated by assets, as demonstrated by the illustration given above. Not only it reflects the impact of losses upon the reduction of equity capital, but especially on a marked difference between the development of working capital and the actual requirement for this capital. In 1998, as many as eight sectors saw a decline in sales revenue generated by assets (the sales-to-assets ratio). Nonetheless, 26.78% of short-term loans was allocated to these sectors over the next year. Despite further decreases in working capital in these sectors in 1999, as much as 54.09% of short-term loans was allocated thereto in 2000. Such a development partially indicates the degree to which the allocation of credit funds is effective, the degree to which the real reproduction of corporate flows of funds was respected and the impact of loans upon the development of the borrowers' working capital.

Figure 1 Development of Short-Term Financial Leverage



CLI = current liabilities
SLO = short-term loans
TLI = total liabilities
TLO = total loans
WC = working capital
CA = current assets

The current liabilities-to-total liabilities ratio has stabilised, with current liabilities accounting for 68% of total liabilities. In relation to the development of working capital, this means a high proportion of external short-term financing. At the same time, two related facts need to be mentioned. There were 1.72 SKK of current liabilities charging 1 SKK of short-term receivables in 1999. What posed an even greater potential risk though, was the 1 SKK of current liabilities pertaining to 1 SKK of current assets. Considering the age structure of charged current assets, any short-term liability, including a short-

Table 2 (current liabilities/current assets as percentage)

Sector/indicator	1993	1994	1995	1996	1997	1998	1999
Agriculture, hunting, fishing (1)	0.86	0.75	0.74	0.76	0.94	0.76	0.73
Forestry and timber industry (2)	0.52	0.49	0.48	0.51	0.53	0.50	0.46
Raw materials extraction (3)	0.98	0.76	0.68	0.65	1.03	0.96	1.19
Food industry (4)	0.91	0.97	0.96	0.98	1.06	1.04	0.99
Chemical and pharmaceutical industry (5)	0.82	0.82	0.77	0.83	0.75	0.87	1.08
Metallurgy and mechanical engineering (6)	0.80	0.78	0.83	0.94	1.09	1.07	1.15
Electrical and electronic industry (7)	0.94	0.79	0.86	0.89	2.30	0.97	1.01
Textile, clothing and leather-making industry (8)	0.66	0.77	0.89	0.98	1.08	1.05	1.06
Other industries (9)	0.76	0.95	0.90	0.95	1.00	1.06	1.05
Power industry, gas and water supply (10)	0.98	0.75	0.76	0.63	0.65	0.79	0.75
Building and construction (11)	0.55	0.61	0.62	0.70	0.76	0.82	0.86
Trade, sales, catering and hotel services (12)	0.86	0.81	0.96	0.99	0.91	1.03	1.12
Transport, warehousing, tourism and communications (13)	0.72	0.98	0.76	0.92	1.38	1.45	1.58
Other activities (14)	0.49	0.51	0.58	0.74	0.95	0.97	0.74
Total	**0.76**	**0.77**	**0.81**	**0.87**	**0.99**	**0.99**	**1.00**

[3] As stated in the previous paper, a reported profit (loss) does not necessarily give a realistic view of the actual performance. Profit is an accounting entry that can very easily be influenced and adjusted. This is the reason why this analysis focuses on other parameters of financial stability.

term loan, is bound to be risk bearing. Nevertheless, the figure clearly indicates that even with such a starting position in 1999, an increase in short-term credit exposure was recorded in 2000. In 2000, 32.31% of short-term loans was allocated to sectors which exhibited negative working capital and whose current liabilities exceeded current assets in 1999. It therefore goes without saying, that such loans are risky. Table 2 comprises the development of the short-term charge on current assets by respective sectors.

From Figure 2 the reader may judge for himself to what extent the reduced general rate of credit risk is attributable to enhanced performance of borrowers or, alternatively, to the assignment of bad debt (the value of CRC – credit risk coefficient is represented by the left numerical axis).

Figure 2 Development of Parameters Influencing the Risk Exposure of Short-Term Loans

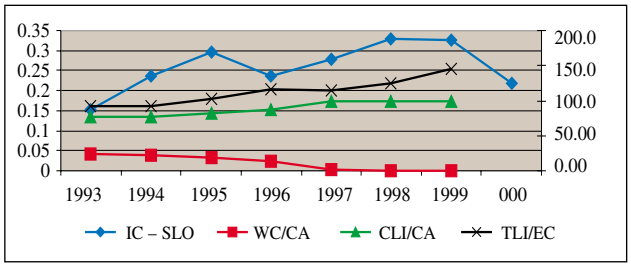


Figure 1 shows the relationship between the working capital/current assets ratio and short-term financial leverage, including short-term leverage (with the right numerical axis representing the WC/CA ratio).

A loan should be instrumental to the borrower's financial stability, and/or co-create it. When it causes a decline in working capital, it becomes risky. From this it follows that it should, at the minimum, ensure a simple reproduction of long-term funds. That is, it should not reduce the real value of the sum of equity capital (EC) and long-term liabilities (LLI) over the borrower's balance sheet amount. Nevertheless, Figure 3 clearly shows that hand in hand with a diminishing capitalisation of borrowers (EC/BSA – balance sheet amount), the value of long-term funding used to sustain the cycle of operation also falls. This results in a virtually zero value of working capital to current assets (with the right numerical axis representing the development of the WC/CA ratio).

Figure 4 gives an even better view of the role of short-term loans in the reproduction of borrowers' flows of funds. The short-term charge on current assets (CLI/CA) grew steadily over the entire period subject to analysis. At the same time, starting from 1997, current assets in the corporate sector were fully funded through current liabilities (CLI/CA). The replenishment of current assets therefore depends on external funding. If turnover time of these assets is long, current liabilities cannot be discharged. As part of this development, current assets are increasingly funded through short-term loans (SLO/CA). With the starting financial position of borrowers as it was in 1999, the banking sector increased short-term credit exposure in 2000 (with the right numerical axis representing the short-term loans/total loans ratio).

Figure 3 Impact of Development of Long-Term Funding on Development of Working Capital

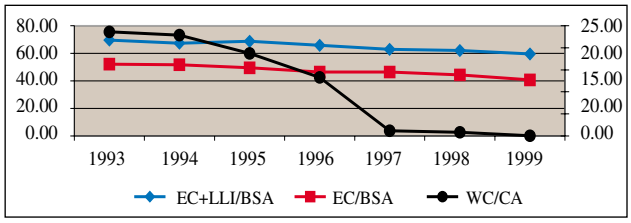
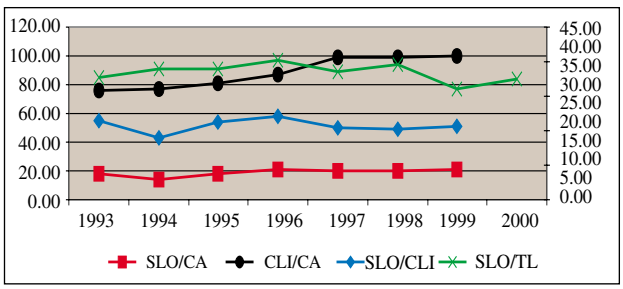


Figure 4 Position of Short-Term Loans in the Structure of Working Capital



Up until the year 2000, there was no room for ensuring the growth of working capital considering the age structure of credit exposure. Quite the contrary was true. Nonetheless, with the use of various forms of refinancing, a significant portion of short-term loans was, as a matter of fact, converted into liabilities with a longer maturity period. Based on the development of the borrower performance parameters under analysis, it should be said, however, that the refinancing was primarily necessitated by the long corporate asset turnover time and the development of return on those assets. Figures 5a and 5b show the development of working capital (WC) in absolute terms based on two relationships defined in the previous paper (with the borrowers' aggregate working capital being represented by the right numeric axis).

Figure 5a Developments in Working Capital and Its Structure (A)

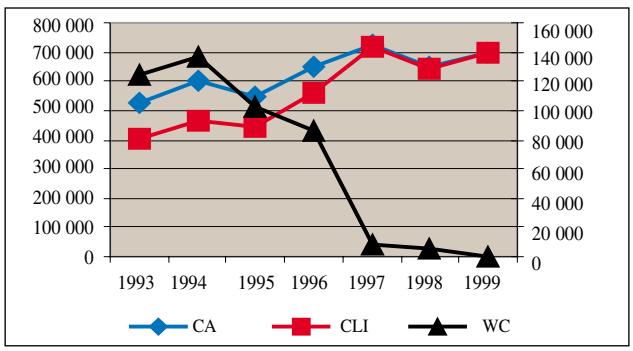
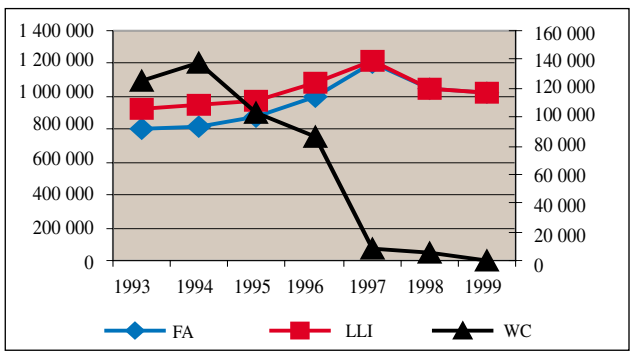


Figure 5b Developments in Working Capital and Its Structure (B)



Up until the year 1997, the value of current liabilities was catching up with the value of current assets. Viewed from a different perspective, the fixed assets have gradually absorbed the working capital. From 1997 onwards, these parameters influencing the borrowers' working capital have been developing in parallel. Considering the real corporate asset turnover time and return on these assets, working capital has, however, been on the decline.

The repeated assignment of bad debt in 2000 did not translate into a changed age structure of loans leading in turn to an increase in the borrowers' working capital. Quite understandably, the response could not have occurred immediately. There is a need though to analyse the development of these relationships. The costs expended on revitalising the banking sector should show in a recovery in flows of funds in the corporate sector, with some contribution from the banking sector. For the time being, this has not been the case. Current liabilities, as part of overall indebtedness of the levered corporate sector, are on the increase. When it comes to the age structure of loans, short-term loans are growing even more rapidly. This results in the aforementioned reduction in working capital.

It must be reiterated once again, that prudence in the banking sector comes as a response to the performance of the debt-ridden corporate sector.

One of the indicators used to assess customer creditworthiness is the Altman formula. This characterizes the borrower's financial standing in terms of his ability to ensure replenishment of his equity capital. A value for this indicator below 1.81 is a sign of an impending bankruptcy. Conversely, a value above 2.99, is a reflection of financial stability. Banks ordinarily apply this indicator when rating their customers, there are however certain risks associated with its use under our conditions. The weighting of an indicator based on operating profit may be as high as 44% of the resulting figure. However, it is an established fact, that the majority of borrowers do not achieve the leverage effect. Not only is the interest higher than the return, but financial losses frequently absorb the entire operating profit. This results in a balance sheet loss and a lack of funds to repay the principal. This means, that the credit risk may be underrated compared to the actual state of affairs, when this indicator is used. This problem is partially resolved through the use of a discrimination function in the form:

DF = (1.5 . X1) + (0.8 . X2) + (10.0 . X3) + (5.0 . X4) + + (0.3 . X5) + 0.1 . X6),

where X1 = cash flow/liabilities,
X2 = balance sheet amount/liabilities,
X3 = balance sheet profit/balance sheet amount,
X4 = balance sheet profit/sales,
X5 = inventory/sales, and
X6 = sales/assets.

As much as 84.7% is tied to indicators based on the balance sheet profit. Nevertheless, this must be a profit with an acceptable likelihood of being actually achieved. This indicator should also be applied in the second phase of rating the borrower's financial standing (where the first phase is to establish the likelihood of the profit being achieved and the second phase concerns the harmonization of the amount of profit generated with the lending terms). A low weighting for the sales-to-assets ratio and the fact that it does not comprise an indicator based on working capital[4], are to the disadvantage of this indicator.

Nonetheless, it is clear that, irrespective of the indicator used, a diminished value of this indicator is a significant indicator of increased credit risk. Figure 6 and Table 3 only confirm the statement already made several times, which is, that the parameters of risk exposure to borrowers have not been mitigated and that the fall in credit risk over the years 1999 to 2000, is a result of the assignment of claims.

Figure 6 Comparison of Development of Discrimination Function and Credit Risk Coefficient

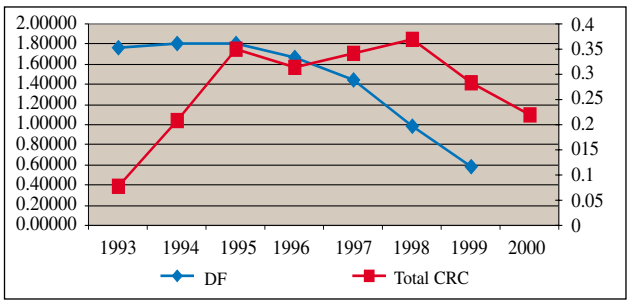
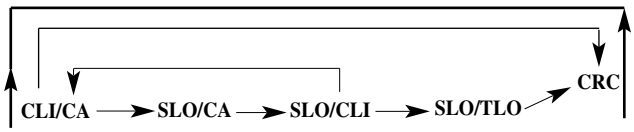


Table 3 (the value of discrimination function for the sample analysed)

Year						
1993	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
1.76228	1.80415	1.81122	1.67354	1.44241	0.98441	0.57731

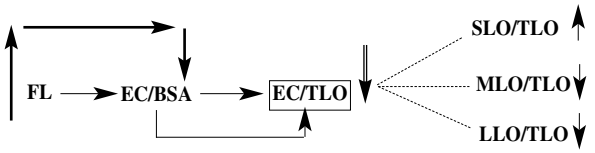
All the analysed relationships between the development of the borrower performance parameters, the development of their financial and capital stability and the role of loans in the replenishment of their flows of funds can be concisely summarised using the following schematics:



In 2000, the value of short-term loans (SLO) to the value of current assets (CA) increased. The value of short-term loans in relation to the value of current liabilities also grew. This indicates that short-term loans contributed towards the higher short-term charge on current assets (CLI/CA). At the same time, the growing proportion of short-term loans, as reflected in the age structure of loans, translated into increased credit risk. Though the whole analysis has focused on the developments in the loan portfolio until the year 2000, it should be noted

[4] It is therefore necessary, on the basis of regression analyses and the examination of correlation trends, to identify such a structure of indicators, and particularly of their weights, which should allow for a more objective assessment of the future risk in our circumstances. This is a complex problem area, which could not be covered by this paper.

that in 2000, upon the completion of the assignment of bad debt, the value of credit risk coefficient for short-term loans fell to 0.217. This was to a large extent influenced by the assignment as such, but was still high. With an increase in the short-term credit exposure in 2000, an increase in credit risk coefficient for short-term loans to 2.43 was recorded as of June 30, 2001.



The given schematic provides a different view of the causes of a general rate of credit risk. An increase in the financial leverage has previously been noted. The cost of external funding is generally greater than the return on such funds. A failure to achieve the leverage effect shows in reduced capitalisation "equity capital (EC)/balance sheet amount (BSA)". Concomitantly, the value of equity capital per 1 SKK worth of loans is also reduced. However, where the shortage of equity capital that is a part of the long-term funding, is met through short-term loans, such loans cannot be considered as a vehicle for financial stability.

As in previous papers, this paper only gives a brief summary of the analyses of relationships between sector credit risk and selected sector performance parameters. It is primarily aimed at highlighting the importance of trends in working capital, which influence the stability of the borrowers' flows of funds and, by the same, the credit exposure due to loans used for their replenishment. Strengthening the borrower's working capital is one of the fundamental principles of effective allocation of loans. The result of a failure to observe this principle is a lower return on loans made, which in return influences the actual working capital requirement.