

# Financial Indicators of Rentability on Example of Czech Banks in the Period 1995 - 2002

Radek Mazák, Liběna Teplá

Univerzita Pardubice, Fakulta ekonomicko-správní

## **Abstract**

*Příspěvek se zabývá analýzou finančních ukazatelů rentability, která byla provedena na bankách působících v České republice v letech 1995 – 2002. Finanční ukazatele rentability byly rozděleny do dvou skupin – pro stabilní banky a pro nestabilní banky, přičemž grafické znázornění finančních ukazatelů by mělo potvrdit předpoklad odlišného vývoje jednotlivých finančních ukazatelů pro skupinu stabilních bank a nestabilních bank.*

## **1 Introduction**

The aim of this contribution is to introduce the development of selected financial and rentability indicators of selected banking institutions settled in the Czech republic in the period from 1995 – 2002. The banks were divided in two groups – group of properly running banks and the group of bankrupted banks. This dividing was done according to real development of Czech banking sector, especially using basic data overview from Czech National Bank and its banking supervision section. To the group of observed banks were put all common banks except housing saving banks, because their business is different from the business of commercial banks, and except subsidiaries of foreign banks, because their behaviour is mostly influenced by their foreign owners. Data for financial indicators calculating were taken from published accounting reports, this means the balance sheets and profit and loss account of each bank.

When selecting suitable methods and indicators, different availability of data was considered. At financial indicators the used approach is different due to individual authors (for ex. Baboušek 0 or Ziegler 0) and foreign literature (for ex. Golin 0). According to data availability in the Czech banking sector, financial indicators were chosen so that they generally match the sector specifications, Czech accounting standards and legal information obligation of all bank institutions.

## **2 Characteristics of financial indicators**

For rentability analysis following indicators were taken:

- netto rentability to average level of assets (ROAA);
- netto rentability to average level of equity (ROAE);
- interest spread;
- profit spread.

Due to proper collecting of the data, introduced financial indicators were evaluated on examples of stable banks in the period from 1995 – 2002 and financial indicators of unstable banks from 1995 – 2000, because there aren't any banks in 2001 and 2002 that had to face compulsory governance or lost their banking licence. The amount of problem banks is mentioned in Chart Nr. 1.

**Chart Nr. 1: Amounts of stabile and unstable banks from 1995 – 2002**

Year	1995	1996	1997	1998	1999	2000	2001	2002
<b>Amount of stabile banks</b>	12	13	15	17	16	16	17	17
<b>Amount of unstable banks</b>	23	11	10	8	7	5	0	0
<b>Total amount of banks</b>	35	24	25	25	23	21	17	17

Source: www.cnb.cz

Individual financial indicators<sup>1</sup> were calculated for each bank in every mentioned year. Based on this calculations the median of each financial figure and year was selected different for stabile and for unstable banks (see Chart. Nr. 2 and Chart. Nr. 3). This statistical figure was chosen because of its common use by rating agencies (for ex. Moody's and Standard & Poor) when evaluating the financial indicators of banks (for ex. ROAA, volume of non-standard credits), when all values of these indicators are taken from last 3 years and they are compared with the median of classified group. Usually they are also presented in graphs 0.

**Chart. Nr. 2: Values of selected financial indicators for stabile banks in the period 1995 – 2002 (median)**

	1995	1996	1997	1998	1999	2000	2001	2002
<b>ROAA</b>	0,69%	0,79%	0,52%	0,33%	0,02%	0,30%	0,58%	0,66%
<b>ROAE</b>	3,88%	8,89%	3,53%	3,75%	0,36%	2,67%	12,00%	9,63%
<b>Profit margin</b>	6,13%	8,18%	4,80%	2,84%	0,23%	2,90%	6,71%	12,31%
<b>Profitability of credits</b>	9,15%	10,02%	12,04%	12,56%	10,20%	6,42%	7,21%	4,92%
<b>Cost on deposits</b>	4,92%	6,24%	7,89%	8,21%	5,88%	3,77%	4,44%	2,85%
<b>Interest spread</b>	3,48%	2,89%	2,00%	2,52%	3,47%	2,99%	2,34%	1,97%

Source: own calculation

**Chart. Nr. 3: Values of selected financial figures of unstable banks in the period 1995 – 2000 (median)**

	1995	1996	1997	1998	1999	2000
<b>ROAA</b>	-2,02%	-1,30%	-0,91%	-0,35%	0,00%	0,13%
<b>ROAE</b>	-15,60%	-22,59%	0,48%	-0,66%	0,00%	0,79%
<b>Profit spread</b>	-16,69%	-7,26%	-4,23%	-4,38%	0,00%	8,24%
<b>Profitability of credits</b>	12,62%	12,19%	14,66%	14,36%	11,23%	9,21%
<b>Costs on deposits</b>	7,16%	8,02%	9,69%	8,88%	6,13%	3,97%
<b>Interest spread</b>	4,69%	4,06%	4,84%	5,48%	3,79%	5,31%

Source: own calculation

<sup>1</sup> All calculations were done in MS Excel.

### ***ROAA Figure***

**The profit (rentability) on assets** (return on assets, ROA) measures the rentability of total corporate assets or the average netto profitability of all used financial sources. It is presented in two forms – as proportion of netto income and assets (ROA) or as proportion of netto income and average level of assets (ROAA). Because the banks are using the average level of assets, I will mention ROAA figure.

$$\text{ROAA} = \text{Net Income} / \text{Average Total Assets}$$

ROAA figure shows how effective the bank is using its assets. The investor give more attention to the relation between net income and equity (ROE), but ROAA figure is also important. Because in a difference from ROE is ROAA commensurable between banks working in various economical conditions and is not influenced by the debts of the banks. Babouček I. [0] mentions as a standard value of ROAA figure 1%.

### ***ROAE Figure***

The next figure is **profit (rentability) on equity** (return on equity, ROE). This figure has the main importance for company's shareholders. The banks must publish this figure as the average return on equity, this means ROAE.

$$\text{ROAE} = \text{Net Income} / \text{Average Total Equity}$$

It was already said this is properly watched by shareholders of the bank. Their main interest is that the bank reaches the highest income with using the lowest level of sources the shareholders have to put into the bank, if possible. The disadvantage is the ROAE is not commensurable for different economical conditions. It also doesn't consider possible speculations. In this way the bank could very easily reach higher ROAE by increasing total debts of the bank. For this reason is necessary to watch both indicators - ROAE in following relation with ROAA. The bank is stable and able to develop itself when high and growing level of ROAE could accompanied with high level or also increasing ROAA. 0

### ***Profit spread figure***

The figure is expressed by following relation:

$$\text{Profit spread} = \text{Net Income (Loss) in accounting period} / \text{Total Operating Income}$$

The value of this figure is strongly depending on the value of netto income/loss. For this reason the stabile banks usually reach higher values and unstable bank often reach lower values only.

### ***Interest spread figure***

Proper definition of interest margin could be complicated, because from public available data could not be separated this part of interests or fees that concerns clients deposits and loans only. Normally we have to consider not only deposits/loans of other banks, but also deposit certificates and bonds. When abstracting from only one of this items, total results of calculated figure are completely different. The difference between active and passive interests is one of the most important income source for each bank. The long term and global trend is decreasing of this kind of income with increase of fees and charges incomes on the other side.

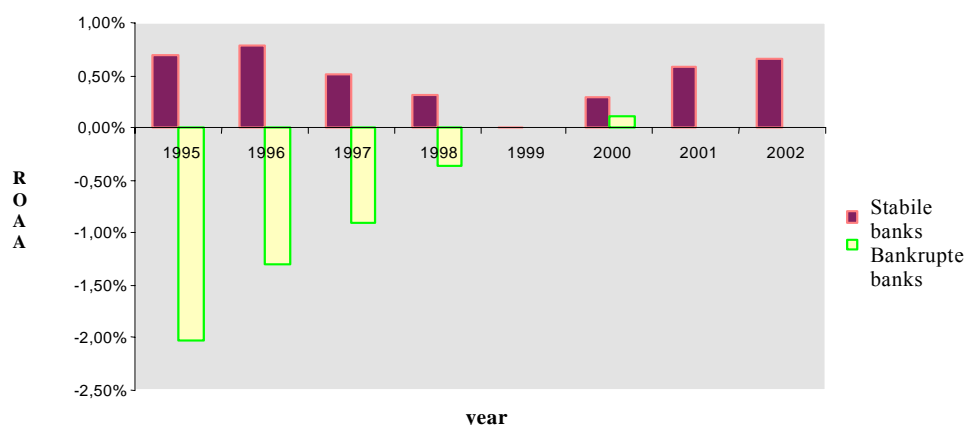
$$\text{Interest Spread} = \text{Net Interest Revenue} - \text{Cost Deposits}$$

### 3 Selected financial indicators in graphs – time period 1995 - 2002

#### *Development of ROAA from 1995 - 2002*

The ROAA figure developed different for stable and unstable bank institutions. This difference was caused especially by unstable banks, because most of small banks bankrupted which later strongly influenced the final value of ROAA figure. The exception was year 1999 when unstable banks disappeared and by this time stable banks also announced problems with classified credits. Median value of ROAA for stable banks reached its maximum value in 1996 (0,78%), the minimal value was reached in 1999 at 0,03%. The average value of ROAA for stable banks is 0,50% in described time period, which is according to the evaluation of J. Golin the lowest value for awarding the status „middle“. Among unstable or problem banks the ROAA figure reached its minimal value in 1995 (-2%) and its maximum value in 2000 (0,13%). The average value of ROAA for unstable banks was -0,07%. At this group of banks the ROAA figure could be evaluated as very weak. In mentioned period we can all the time observe increasing of value of this figure, this was caused by continuous disappearing of unstable banks from the banking sector and this finally influenced the ROAA trend in a positive way.

The change in the trend of ROAA in 1999 was in case of stable and unstable bank caused by Czech National Bank, which changed its methods for classification of receivables and creating of reserves and provisions. This caused increasing of incomes of most banks.



Source: own calculation

**Graph Nr. 1: Values of ROAA in the period 1995 – 2002**

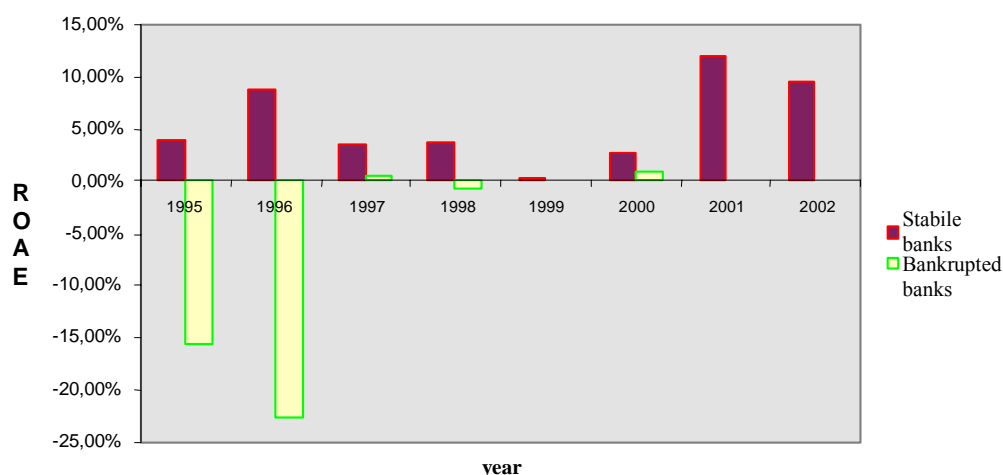
#### *Development and trends of ROAE from 1995 - 2002*

Among stable banks this indicators reached values from 0,36% ( in 1999) to 12,00% (in 2001). The average value of ROAE was 5,59%. This figure has positive development, if its trend is increasing, but this cannot be confirmed in this case. It strongly decreased in 1999, this was caused by losses of stable banks, especially concerning Živnostenská banka (value of ROAE in 1998 was 4,16%, later in 1999 -9,20% and in 2000 reached positive value again: 9,75%). Almost in similar way was the situation in the case of První městská banka, BNP – Dresdner Bank, IC banka and J&T banka.

Among unstable bank the ROAE figure reached its lowest value in 1996 (-22,59) and its highest value in 2000 (0,79%). The average value of ROAE was -6,26% for unstable banks. This reported average value was caused especially by appearing of big negative values in 1995 and 1996. Mentioned negative values in those years could be presented as results of heavy losses, especially concernig smaller bank institutions. When the process of

disappearing of those banks from the Czech banking sector started, the values of ROAE got continuously improved.

The change in the trend of ROAE in 1999 was in case of stable and unstable bank caused by Czech National Bank, which changed its methods for classification of receivables and creating of reserves and provisions. This caused increasing of incomes of most banks.



Source: own calculation

**Graph Nr. 2: Values of ROAE in the period 1995 – 2002**

In the same way as it was mentioned at ROAA we can observe different values for stable and unstable banks, the group of stable and properly running banks generally reported positive values, on the other side the group of bankrupted banks reported strong negative values.

### ***Trends in profit spread and its development from 1995 - 2002***

The profit spread reached always lower values at unstable banks comparing to properly running banks, this was by the way caused especially by high interests offered on deposits. The exception was the year 2000 when the profit spread at the group of problem banks was 5,5% higher comparing to the group of stabile banks.

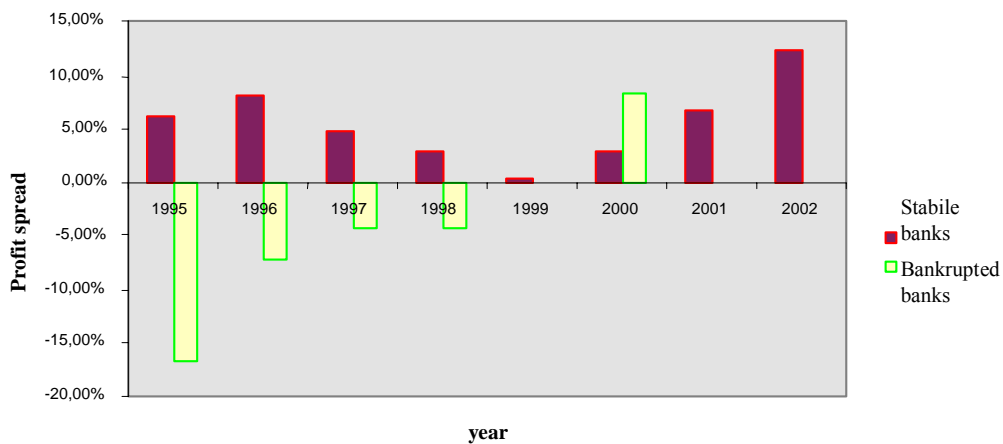
Stabile banks reached maximal profit spread in 2002 (12,31%) and its minimal value in 1999 (0,23%). The average value was 5,51%. Generally low value reported in 1999 was caused by losses of banks, when some banks reached the profit spread in negative values. For example První městská banka reached the profit spread valueho -20,35%, IC banka -22% and Živnostenská banka -5,5%. Comparing with this situation, year 2002 was successful and profitable for Czech banks. The only exception was e-Banka (-19%), when most banks reached the profit spread in the value over 10%, highest values reached BNP – Dresdner Bank (19,7%) and Komerční banka (16%).

Minimal level of profit spread was reached in 1995 (-16,69%) for problem banks, maximal level of values was reached later in 2000 (8,24%). The extremely low value from 1995 can be explained by fact that problem and unstable banks often reported huge losses together with low level of their revenues. For this reason was the profit spread in 1995 for Bankovní dům SKALA emerging -544%, Ekoagrobanka -202,5% and Česká banka -81,1%. Later in year 2000 the banks reported profit, except KB (profit spread -0,14%) and Union banka (-1,03%). The rest of banks was profitable in that year, the highest value of profit spread had Plzeňská banka 15,95% and Česká spořitelna 12,3% and ČSOB 8,24%. In accordance to continuous

disappearing of problem and unstable banks, values of profit spread always increased in following years.

If I decided to put the year 2000 away from the watched chronological series, it would be possible to find a conclusion that stabile banks reached generally different values in comparison to problem and unstable banks. The year 2000 is not suitable for our analysis because of group of problem banks as I have already explained above.

The change in the trend of the profit spread in 1999 was in case of stabil and unstable banks caused by Czech National Bank, which changed its methods for classification of receivables and rules for creating of reserves and provisions. This caused increasing of incomes of most banks..



Source: own calculation

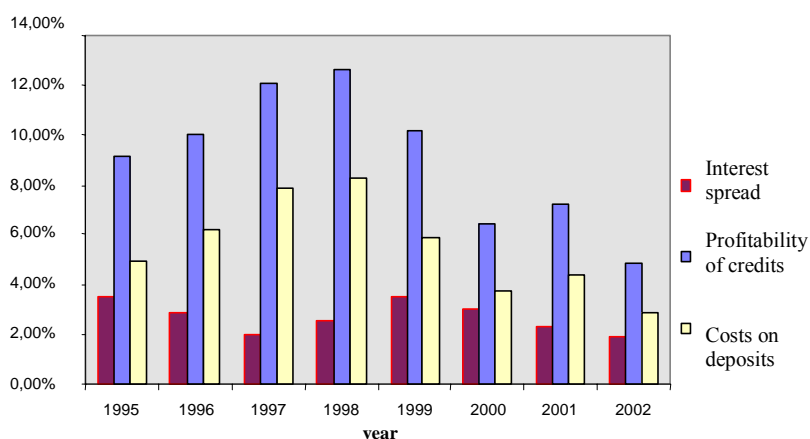
**Graph Nr. 3: Profit spread and its development from 1995 – 2002**

### ***Trends in interest spread and its development from 1995 - 2002***

The development of the interest spread is given by the difference of profitability of credits and cost on deposits. In Graph Nr. 4 can be seen that minimal interest spread was in 2002 (1,97%) and maximal interest spread was reached in 1995 and 1999 (3,5%). The average value was 2,71%. High cost on deposits in 1998 was especially influenced by high cost payed on interests in the sum of 6 bil. CZK at CLB Praha (CLB Prague) – where the value of deposit costs was 30,04%, at J&T Banka were deposit costs (27,7%) influenced mostly by low payables (liabilities) (value 350 mil. CZK) and payables to clients (111 mil. CZK) and by low interest costs (127 mil. CZK.). Comparing ČMRZB to above mentioned values, here we have cost on credits 19,5%, especially caused by high payables to banks (6 bil. CZK) and on the opposite site relatively low level of interest cost in the sum of 723 mil. CZK only.

Those banks in the same time managed to reach high level of credit profitability in 1998 – Credit Lyonnaios Bank (CLB) Prague 32,5%, J&T Banka 28,6% and ČMRZB 13,5%. CLB Prague had receivables and credits given to banks at the value of 8,3 bil. CZK, receivables due from clients at 10,8 bil. CZK, bonds and other securities with fixed revenues used for trading at 337 mil. CZK and interest revenues at 6,4 bil. CZK. J&T Banka reached in comparing to CLB Prague generally lower values –receivables and credits given to banks at 545 mil. CZK, receivables due from clients at 269 mil. CZK, bonds and other securities at 509 mil. CZK and interest revenues at 379 mil. CZK.

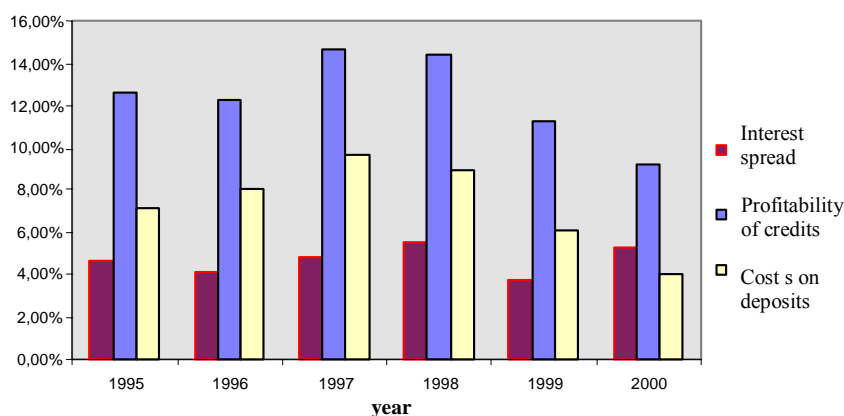
Despite the the fact that stabile banks reached in 1998 maximal values of deposit costs and profitability of credits, the value of interest spread in 1998 was 2,52%, wchich can be evaluated as average value only.



Source: own calculation

**Graph Nr. 4: Trends and development of interest spread from 1995 – 2002 (stable banks)**

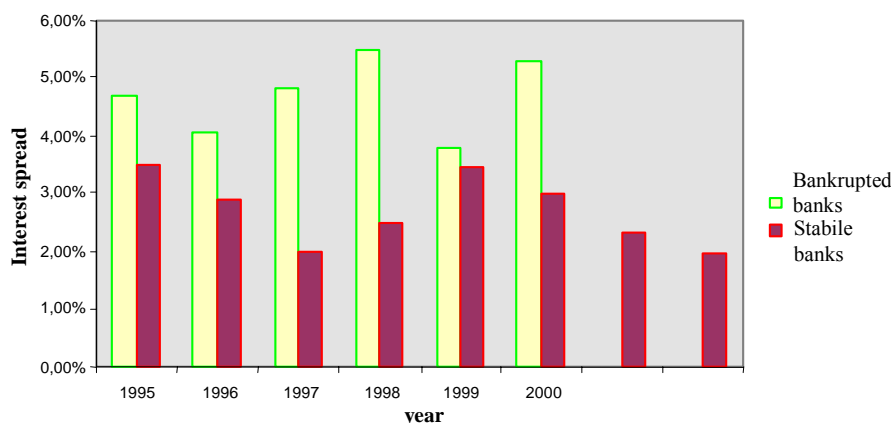
In the development of the interest spread we observe that its maximal value for problem and unstable banks was reached in 1998 - value 5,48%, the minimal value in 1999 – value 3,79%. The average interest spread was 4,70%. Cost on deposits and profitability of credits reported by individual unstable banks didn't express any important differencies from the trend which was observed in development of other banks. There is only one exception - Zemská banka in 1996, when its interest spread value was – 4,3%. This was due to high cost on deposits (25,6%) in relation to low profitability of credits (21,3%).



Source: own calculation

**Graph Nr. 5: Interest spread and its development from 1995 – 2000 (unstable banks)**

According to situation presented in Graph Nr. 6, *unstable banks reached higher values than stabile banks*. Values reported at group of unstable banks usually varied from 3,79% - 5,48%, at the group of stabile banks the values were froms 1,97% - 3,5%. The optimum value for this figure should be under 3,5% for stabile banks. In case the bank would reach the value of interest spread hiher than 3,5%, we could evaluate this bank institution as unstable.



Source: own calculation

**Graph Nr. 6: Interest spread and its development from 1995 - 2002**

#### 4 Conclusion

This contribution presented at all watched financial indicators of rentability different values for the group of stabile and properly running banks a for the group of unstable or problem banks. This result is a baseline for working out the financial analysis of other financial indicators for above mentioned groups of banks. Financial indicators and its values which are the result of this wider analysis will be used to create a model of banking stability based on discriminant analysis. With help of this suggested banking stability model the decision about stabile or unstable bank can be done.

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#### Kontaktní adresa:

Ing. Radek Mazák  
 Univerzita Pardubice, FES, Ústav veřejné správy a práva  
 Studentská 84, 532 10 Pardubice  
[radek.mazak@centrum.cz](mailto:radek.mazak@centrum.cz)  
 46 603 6571

Ing. Liběna Teplá  
 Univerzita Pardubice, FES, Ústav ekonomie  
 Studentská 84, 532 10 Pardubice  
[libena.tepla@upce.cz](mailto:libena.tepla@upce.cz)  
 46 603 6452

**Recenzovala:** doc. Ing. Liběna Tetřevová, Ph.D., Ústav ekonomie, FES, UPa