USE OF FINANCIAL INDICATORS IN THE CREDITWORTHINESS

Ljiljana Sorak¹, Snežana Urošević²

¹ High School for Economics and Informatics Prijedor, Serbian Republic, Bosnia and Herzegovina
² University of Belgrade, Technical Faculty in Bor, Management Department, Bor, Republic of Serbia

Abstract: The largest part of the banking business is related to lending activities, and therefore they carry the highest risk. To reduce the risk when lending banks have to assess the credit risk to which they are being exposed. Credit risk assessment of companies is based on an analysis of their financial statements. By analyzing the financial statements, banks receive important information about company’s financial position, cash flows, changes in equity and results of yield of the company in a defined period. On the basis of relevant indicators of financial analysis banks estimate future financial value of a company which will influence its ability to repay a loan. The aim of the study is to show what kind of financial analysis and financial indicators banks use in assessing the corporate creditworthiness.

Key words: financial report analysis, creditworthiness, ratio analysis

1. INTRODUCTION

To protect themselves from risky investments banks perform credit analysis of the loan applicant. Key part of credit analysis is financial analysis which is based on financial indicators. If financial analysis gives satisfactory indicators, banks perform deeper credit analysis which beside financial analysis also includes industry analysis in which the organization conducts the business, their position within the industry, quality of the management and elements of transaction structure such are contracts.

Good analysis of credit applicant’s financial aspects gives valuable information about applicant’s creditworthiness. Analysis provides answer to question how the company operated in previous period and it gives assumptions about future operations, i.e. whether the company will be able to repay credit obligations to bank. Banks perform financial analysis based on financial reports which company provides when applying for a loan. Financial reports which company gives are:

a) balance sheet – shows financial position of the company at the end of observed period,
b) income statement – observes changes in financial position which took place in the company,
c) report about changes in equity,
d) cash flow report, which offers evaluation of various sources and usage of cash in observed period,
e) accounting policies and explanatory notes – contain information which are relevant for user’s needs about positions in balance sheets, as well as public
display of risks and uncertainties that influence company, or information about geographical and industrial segments, no. of employees and other relevant data.

2. FINANCIAL REPORT ANALYSIS - HORIZONTAL AND VERTICAL ANALYSIS OF FINANCIAL REPORTS

Financial analysis begins with horizontal and vertical analysis. The goal of horizontal and vertical analysis is to better comprehend financial reports and their interrelations.

**Horizontal analysis** represents comparison of balance positions in balance sheets of current and previous year, as well as positions in income statement of current and previous year [3]. It is in fact comparative analysis of financial reports. Detailed analysis is needed for identified changes in the form of deviation, reduction or increase in value of position in financial report.

**Vertical analysis** of financial reports shows in percentages stakes which various groups, subgroups and positions have in total assets. For vertical analysis of balance sheet, total assets and total liabilities are used as a base figure. For vertical analysis of income statement, we use as a base sales figure which come from sale of products, goods and services on domestic and foreign market. Percentage comparison of items from financial report between two or more account periods provides certain conclusions about structure and changes in structure of assets and liabilities. These changes are next analyzed in detail, with the goal to understand observed changes.

3. RATIO ANALYSIS OF FINANCIAL REPORTS

Ratio analysis of financial reports represents every number which shows relation between two values in annual accounts [5]. Bank, i.e. credit officer based on ratios performs analysis of credit applicant’s business. Indications derived from ratio analysis lead credit officer to ask credit applicant certain questions and by that way complete financial analysis. Financial report analysis performed by credit officers put emphasis on ability to return the loan and risks related to credit applicant’s business. In order to rate credit ability and business risk of credit applicant, credit officer must consider sufficient number of ratios and determine their interdependence.

Ratio analysis is useful for:

- observing trends in financial activities of business entity;
- comparison of financial characteristics of specific business entity with other business entities from the same business area or from the same branch;
- determining interdependence between factors which influence financial success of business entity [2].

Based on information gathered from certain indicators of ratio analysis we can distinguish:

1. liquidity indicators,
2. debt indicators
3. activity indicators,
4. profitability indicators, and
5. indicators of cost effectiveness.
3.1 Liquidity indicators

In the process of ratio analysis of financial reports we are evaluating liquidity of credit applicant, i.e. its ability to repay - within defined deadlines and under defined conditions - obligations toward creditors. Liquidity indicators compare current liabilities with short-term or current sources available for settling short term liabilities.

Liquidity ratios are:
1. current ratio,
2. quick ratio,
3. cash ratio,
4. financial stability ratio.

**Current ratio** shows company’s ability to service current liabilities with available current assets [4]. It derives from observing relation between short-term assets and short-term liabilities. Value of general liquidity ratio is compared with the same indicator in previous year, and with ratios of the companies from the same branch. If the current ratio is below 1.5, there is a possibility that the company will not have enough assets to meet short term liabilities. If the value of current ratio indicator is significantly higher than industrial average, this shows that assets are not used efficiently.

**Quick ratio** is expressed by observing relation between current assets minus inventory, and current liabilities. It should be min 1, which means that current liabilities should not be higher than current assets from which we excluded inventory.

**Cash ratio** shows the coverage of current liabilities with cash. It is believed that this ratio shouldn’t be less than 0.1 i.e. 10%.

**Financial stability** ratio is determined by putting in relation non-current assets with equity plus long-term liabilities. If higher than 1, it points to deficit of working capital.

3.2 Debt indicators

Debt indicators point to ways in which a company finances its assets, i.e. how much of business is financed from own sources and how much from the loan. These indicators represent the level of risk for investing in a company. Companies which are highly geared lose their financial flexibility and may have problems finding new investors, so they face the risk of bankruptcy. However, if the debt indicator is under control and loan is used properly, it can result in increase of return on investment.

Most widely used debt indicators are:

1. Debt-to-assets ratio,
2. Equity - to- assets ratio,
3. Debt-to-equity ratio,
4. Interest coverage ratio,
5. Leverage factor.

**Debt-to-assets ratio** shows the extent to which a company uses debt as a form of financing. The higher the ratio of debt to assets, the greater is financial risk, and vice versa - the lower the ratio of debt to assets means lower financial risk. The rule is that
value of this ratio should be 0.5 or less. It can be calculated by dividing total liabilities with total assets:

\[ \text{Debt to assets ratio} = \frac{\text{Total liabilities}}{\text{Total assets}} \]

**Equity-to-assets ratio** shows how much of company’s equity is involved into company’s business. It is better if the value is over 0.5, which implicates that company is financed by its own equity more than 50%. It is calculated in the following way:

\[ \text{Equity-to-assets ratio} = \frac{\text{Equity}}{\text{Total assets}} \]

**Debt-to-equity ratio** shows the proportion of debts or total liabilities of a company to equity. This indicator grows faster with growth of liabilities in equity structure. Upper limit for this proportion is usually 2:1. High value of this indicator points to possible difficulties in returning borrowed funds and interest payments. It is calculated in the following way:

\[ \text{Debt-to-equity ratio} = \frac{\text{Total liabilities}}{\text{Total equity}} \]

**Interest coverage ratio** shows how much business earnings can drop without jeopardizing payments of interest. It gives information how much are interest expenses covered with company’s earnings before tax.

It is calculated in the following way:

\[ \text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Annual interest expense}} \]

Higher result is desirable, because it means that the risk of not paying interest is lower. This indicator is good for orientation when deciding about asking financial organizations for a loan, i.e. it shows whether the credit applicant is in a position to pay interest cost for a credit it would potentially ask.

**Leverage factor** shows how many years it would take for a credit applicant to pay its liabilities under existing business terms and profits. It is calculated in the following way:

\[ \text{Leverage ratio/factor} = \frac{\text{total liabilities}}{\text{net profit + depreciation}} \]

Observed from the aspect of company’s business security, it is implied that smaller leverage factor means higher security and vice versa. Controlling measure for this factor is 5 years, which means that if a company is able to repay all its liabilities within 5 years it is solvent and not overdue.

### 3.3 Activity indicators

**Activity indicators** or turnover ratio are measure of success in managing company’s assets. They show circulation speed of assets in business process. General formula for calculating turnover ratio is:

\[ \text{Turnover ratio} = \frac{\text{Sales}}{\text{average balance}} \]
When calculating average balance usually is taken into account sum of bookkeeping balance at the beginning and at the end of year, and then divided with 2 \([ \text{previous year} + \text{current year}]/2 \).

From the aspect of credit analysis, the following ratios are analyzed:

1. Current asset turnover ratio and total asset turnover ratio,
2. Inventory turnover ratio,
3. Accounts receivable turnover,

Current asset turnover ratio shows how many times current assets of the company are turned over in a year. This ratio measures efficiency with which a company uses current assets to make a profit within a business cycle. It is calculated in the following way:

\[
\text{Current assets turnover} = \frac{\text{Sales}}{\text{Average current assets}}
\]

If turnover ratio is known it is possible to calculate average collection period, i.e., turnover duration. Average collection period is calculated with the following formula:

\[
\text{Average collection period} = \frac{365}{\text{Turnover ratio}}
\]

For the sake of safety and success it is better when the turnover ratio is higher, i.e., that collection period is shorter.

Total assets turnover ratio shows how many times total assets of the company are turned over within a year, i.e., how successful is a company in employing its assets to make profit. It is calculated in the following way:

\[
\text{Total assets turnover} = \frac{\text{Sales}}{\text{Average total assets}}
\]

The higher the ratio, the faster turnover (i.e., shorter collection period).

Inventory turnover ratio shows efficiency in using and managing total supplies, which has the influence on increase in company’s profit. It is calculated in the following way:

\[
\text{Inventory turnover ratio} = \frac{\text{Sales}}{\text{Average inventory}}
\]

Low ratio means that the company is using its assets in non-productive way and points to inventory of bad quality (outdated, spoiled). It is also possible that company has certain amount of old inventory which are not being used, while others have good turnover. Too high inventory turnover ratio points to fact that the company probably often runs out of inventory and therefore loses its customers.

With the help of inventory turnover ratio it is possible to calculate no. of days inventory in the following way:

\[
\text{No. of days inventory} = \frac{365}{\text{Inventory turnover ratio}}
\]
Account receivable turnover shows how many monetary units of sale can be achieved with 1 KM invested in account receivables. It is calculated in the following way:

\[ \text{Account receivable turnover ratio} = \frac{\text{Sales}}{\text{average accounts receivable}} \]

Average collection of account receivables can be calculated in the following way:

\[ \text{Collection of account receivables} = \frac{365 \text{ days}}{\text{Account receivable turnover ratio}} \]

Increase in average collection of account receivables (drop of account receivables ratio) may mean that company has a problem with collecting receivables. Duration of collecting account receivables should be compared to agreed currency. For example, if the company has granted buyers grace period of 30 days, and average collection of account receivables is 45 days, it means that collection from buyers is being late. If the currency approved to buyers is 60 days it would mean that the collection is ahead of deadline.

Account payable turnover ratio shows in how many days on average a company is paying its suppliers, i.e. how many days are between moment of purchase and moment of paying the suppliers. It is calculated in the following way:

\[ \text{Account payable turnover ratio} = \frac{\text{Value of total purchases of goods and materials in a year}}{\text{average accounts payable}} \]

\[ \text{Average days payable outstanding} = \frac{365}{\text{Account payable turnover ratio}} \]

3.4 Profitability indicators

Profitability indicators connect profit with sales revenue and investments, and by observing them in total they show company’s business success.

Profitability indicators are divided to:

1) Indicators which show profitability compared to sales. Usually are used:
   - Gross profit margin,
   - Net profit margin.
2) Indicators which show profitability compared to investments. These are:
   - Return on assets,
   - Return on equity.

Gross profit margin shows how much gross profit is generated per unit of business revenue. every unit of business revenue. Every increase in value of this indicator is consider to be favorable, and decrease in value points to difficulties in company’s business and can be one of the indicators of business crisis. Gross profit margin in calculated in the following way:

\[ \text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Revenue}} \]
Net profit margin is the most precise indicator of final results of finished transactions and shows what percentage of revenue is left as profit which is at disposal to a company. pokazuje koliki postotak prihoda ostaje u vidu dobiti kojom se može slobodno raspolagati. It is calculated in the following way:

\[
\text{Net profit margin} = \frac{\text{Net profit}}{\text{Revenue}}
\]

Return on assets - ROA is company’s ability to make profit by using available assets, that is, it shows the intensiveness of company’s assets. Return on assets can be calculated in the following way:

\[
\text{Return on assets} = \frac{\text{Net profit}}{\text{Total assets}}
\]

Capital-intensive industries like automobile industry, demand expensive equipment and because of that have high level of assets intensiveness. On the opposite side, marketing agencies have low level of assets intensiveness because their demand for assets is minimal. So, value of return on assets can vary depending of the business in which the company operates. General rule is that all values below 5% mean high level of assets intensiveness, while values above 20% mean low assets intensiveness [6].

Return on equity - ROE or profitability of shareholder’s equity shows how many monetary units of profit company makes per unit of shareholder’s equity. It is calculated in the following way:

\[
\text{Return on equity} = \frac{\text{Net income}}{\text{Shareholder’s equity}}
\]

When profitability of own equity is compared to profitability of assets with the interest which reflects the cost of loan capital, it is possible to make conclusion about profitability of using own capital compared to loaned capital. If profitability rates of own capital are very high, even higher than rates of assets profitability, company would be better of using loaned capital, and vice versa [1].

3.5 Effectiveness indicators

Effectiveness indicators measure relation between profit and cost, and show how much profit is made per cost unit. These indicators should be above 1, because the higher they are, the more profit is earned per cost unit. Effectiveness indicators are:

1) Revenue to cost ratio, which can be calculated in the following way:
\[
\text{Ekonomičnost ukupnog poslovanja} = \frac{\text{Total revenue}}{\text{Total costs}}
\]

2) Cost of revenue to sales ratio, which can be calculated in the following way:
\[
\text{Ekonomičnost prodaje} = \frac{\text{Sales revenue}}{\text{Cost of sales}}
\]

4. CONCLUSION

Business success of every bank is shown in its ability to manage risks to which it’s exposed. Since credit transactions carry the highest risk, they should be adequately evaluated. To lower the level of risk to which they are being exposed when approving the credit to a business entity, banks perform financial analysis of credit applicant’s business. Based on financial analysis banks, i.e. credit officers evaluate financial strength and
business performance of the client in total, and from that they evaluate capability of credit applicant to repay approved credit.

Creditworthiness evaluation of credit applicant’s business should be performed based on financial report analysis: balance sheet and income statement, changes in equity report and cash flow reports. That is why banks should use financial reports which cover period of 2-3 years when evaluating credit ability. Based on gathered financial reports, banks start performing horizontal and vertical analysis of financial reports. The goal of horizontal and vertical analysis is to observe the trends in movement of balance positions. After horizontal and vertical analysis, next is ratio analysis of financial reports.

Ratio analysis of financial reports combines various positions of balance sheet assets with various positions of liabilities and positions of income statement. Based on resulting ratio numbers it is possible to view liquidity, debt, activity, cost effectiveness, financial structure of credit applicant’s business. Based on mentioned ratio numbers it is possible to evaluate creditworthiness of the company, which represents its ability to repay the credit. Creditworthiness of the applicant means that bank will collect receivables on time or eventually from bankruptcy estate.

Bibliography: