AN ATTEMPT TO APPLY THE POINT METHOD OF THE LIQUIDITY ASSESSMENT TO CATEGORISE FOREST DISTRICTS WITH REGARD TO THEIR SOLVENCY

Anna Ankudo-Jankowska

Agricultural University of Poznań

Abstract. In the paper an attempt was made to elaborate a point method of the financial liquidity assessment of forest districts. This method was used to categorize forest districts with regard to their solvency. The investigations were conducted in 26 forest districts of the Regional Directorate of State Forests (RDSF) in Poznań and extended in the period from 1998-2001. On the basis of the analysis of the examined indices of the liquidity and the applied point method, generally speaking, during the studied period a high level of liquidity and its considerable variability was found in individual forest districts. The paper presents general assumptions of the point method of the liquidity assessment in individual forest districts. In order to increase the cognitive value of this method, it seems necessary to continue further studies.

Key words: forest economics, ratio analysis, liquidity analysis, liquidity ratios

INTRODUCTION

Operations of an enterprise functioning in conditions of market economy should guarantee its existence as well as development. In terms of the short time perspective, these targets can be achieved by maintaining the financial liquidity, which is particularly important for newly established companies operating in conditions of unfavourable economical environment. Financial liquidity is defined as the ease with which a given constituent of the company assets can be exchanged for another readily marketable form (e.g. cash) with no or negligible loss of value [Olzacka and Pałczyńska-Gościniak 2000]. Financial liquidity can also be described as unrestricted capability for settling current payables [Waśniewski and Skoczylas 2002].

The loss of financial liquidity of permanent nature results in company's liquidation or bankruptcy. On the basis of the experience of West European countries it can be said

Corresponding author – Adres do korespondencji: Dr inż. Anna Ankudo-Jankowska, Department of Forest Economics of Agricultural University of Poznań, Wojska Polskiego 71C, 60-625 Poznań, Poland, e-mail: aankudo@wp.pl

that the principal cause of bankruptcies of small and medium size enterprises is the loss of their capability to settle liabilities and not the suffered losses. It is estimated that the loss of financial liquidity at satisfactory profitability is the major cause of bankruptcy of 60% of French and about 75-80% of British companies [Sierpińska and Wędzki 1997].

In this study, the author adopted a static method of measuring financial liquidity (for a particular day) which is based on the data found in the balance sheets of individual forest districts. The adopted method of assessment employed an accountancy criterion according to which the current assets were divided into three levels of liquidity: Level 1 – money resources, Level 2 – receivables and Level 3 – inventories and accruals[1].

On the basis of the analysis of financial liquidity, an attempt was made to elaborate a point method of the financial liquidity assessment which allows categorization of forest districts with regard to their liquidity.

RESEARCH OBJECTIVE AND METHODOLOGY

The aim of the performed investigations was to assess the level of financial liquidity of forest districts and then to make an attempt to classify them with regard to their liquidity on the basis of the elaborated point method of the assessment of their financial liquidity.

The investigations were conducted in 26 forest districts of the Regional Directorate of State Forests (RDSF) in Poznań and extended in the period from 1998-2001. The time restriction of the studies up to 2001 resulted from the fact that in the year 2000 the Accountancy Bill was amended (Bill of November, 9th 2000 on the accountancy bill amendment Dz. U. 113, pos. 1186). Calculations were carried out on the basis of the source data contained in:

– Balance Sheets of the State Forest Enterprise of State Forests. Collective report received from individual units from the RDSF in Poznań for years 1998-2001.

– Profit and Loss Account of the State Forest Enterprise 'State Forests'. Collective report received from individual units from the RDSF in Poznań for years 1998-2001.

STATIC ANALYSIS OF THE FINANCIAL LIQUIDITY
OF FOREST DISTRICTS

In the performed analysis of the financial liquidity of the examined forests districts, ratios of the financial liquidity calculated on the basis of the resource values were essential. The employed ratios of the financial liquidity, because of the greater ease of data interpretation, were expressed in relative values (%).

The following ratios were utilized in the analysis of financial liquidity:

1. Ratio of the current financial liquidity (third degree liquidity ratio [Waśniewski and Skoczylas 2002]):

---

[1] Since 2002, following the amendment of the accountancy bill of November, 9th 2000 (bill on the accountancy bill amendment Dz. U. 113, pos. 1186), the division of current assets according to the following degrees of liquidity was adopted: Level 1 – short-term investments, Level 2 – short-term receivables, Level 3 – inventories and short-term accruals.

$$Current\ ratio\quad = \quad \frac{current\ assets}{current\ liabilities^2}\quad \times 100\%$$

2. Quick ratio (second degree liquidity ratio [Waśniewski and Skoczylas 2002]):

$$Quick\ ratio\quad = \quad \frac{current\ assets - inventories - inter\text{-}periodic\ accruals}{current\ liabilities}\quad \times 100\%$$

3. Cash to current liabilities ratio (first degree liquidity ratio [Waśniewski and Sko-czylas 2002]):

$$Cash\ to\ current\ liabilities\ ratio\quad = \quad \frac{money\ resources}{current\ liabilities}\quad \times 100\%$$

CATEGORISATION OF FOREST DISTRICTS WITH REGARD TO THEIR LIQUIDITY ON THE BASIS OF THE POINT METHOD OF ASSESSMENT OF THEIR FINANCIAL LIQUIDITY

Ratios of financial liquidity and their intervals or model values constituted the basis for the elaboration of the point method of the assessment of the financial liquidity of forest districts.

1. The performed assessment employed the current ratio, quick ratio and cash to current liabilities ratio. It must be mentioned here that mean values of these ratios in the analysed period were utilized for the assessment[3].

2. Determination of model intervals for ratios of financial liquidity. Initially, the author adopted theoretical model intervals for the ratios of financial liquidity. The theoretical interval of 150-200% was adopted for the current ratio, whereas for the quick ratio – 80-100%. The mean value of ratios in the forest districts from the Poznań RDSF obtained in the course of the examined period served as the change criterion of the range of theoretical intervals. The mean value of ratios constituted the basis for the change of one of the boundaries of the initially adopted theoretical interval of ratios. The changed boundary of the theoretical interval was the one whose value was closer to the mean value of the ratio. On the basis of the performed investigations, the bottom boundary of the theoretical model interval of the current ratio was corrected adopting the empirical boundary of 140% (mean value of the current ratio – 144.7%). In the initially assumed theoretic model interval of the rapid liquidity, its upper boundary was verified adopting the empirical limit of 120% (mean value of the rapid liquidity – 124.48%). The maximum value for the cash to current liabilities ratio was established at the level of the mean value of this ratio in the Poznań RGSF forest districts during the examined period,

---

[2] Current liabilities comprised the sum of short-term liabilities, special funds as well as inter-periodical accruals and future incomes.

[3] Calculations of the analysed ratios for individual forest districts in the examined years are available at Department of Forest Economics of the Agricultural University in Poznań.

namely at 50% (mean value of the cash to current liabilities ratio – 52.5%). Ultimately, the following intervals and values of model cash liquidity ratios were adopted:
  – the current ratio – 140-200%,
  – the quick ratio – 80-120%,
  – the maximum cash to current liabilities ratio – 50%.
  3. Determination of the point scale of the financial liquidity assessment of forest districts. It was assumed that individual forest districts could get maximum 5 points in the process of assessment of their financial liquidity. Ratios which fall within the limits of the adopted standards are awarded the following number of points: the current ratio – 2 points, the quick ratio – 2 points and the cash to current liabilities ratio – 1 point. On the other hand, the current ratio and the quick ratio whose values exceeded the upper boundary of the assumed standard were awarded 1 point, i.e.:
  – the value of the current ratio which fell within the boundary of: 140-200% – 2 points, above 200% – 1 point, below 140% – 0 points;
  – the value of the quick ratio which fell within the boundary of: 80-120% – 2 points, above 120% – 1 point, below 80% – 0 points;
  – the value of the cash to current liabilities ratio up to the level of: maximum 50% – 1 point, above 50% – 0 points.
  Depending on the number of awarded points, all the analysed forest districts were divided into five groups: group A – 5 points, group B – 4 points, group C – 3 points, group D – 2 points and group E – 1 point.

RESEARCH RESULTS

  The performed investigations allowed the author to determine the mean value of the financial liquidity ratios for forest districts belonging to the Poznań RDSF in Poznań during the examined period. The results of the analyses are presented in Figures 1, 2 and 3. The obtained mean values of financial liquidity ratios were employed to carry out the categorization of these forest districts into four of the five point groups determining their level of financial liquidity (Fig. 4).
  None of the analysed forest districts was allocated to **group A**, because the calculated ratios of the current liquidity, rapid liquidity and cash to current liabilities ratio failed to be simultaneously in the adopted standards.
  Forest districts whose financial liquidity was simultaneously characterized by the following correlations were allocated to **group B**:
  – the current ratio = 140-200%,
  – the quick ratio > 120%,
  – the cash to current liabilities ratio < 50%.
  Forest districts characterized by a good level of financial liquidity were allocated to group B. Their of the current liquidity ratio and cash to current liabilities ratio fell within the boundaries of the standard, while the quick ratio during the examined period of time remained on a relatively high level. Forest districts found in this group included those enterprises whose utilization of current assets (from the point of view of the assessment of financial liquidity) deserves the highest score. The quick ratio did not exceed 170% and the money resources covered 26 to 41% of current liabilities.
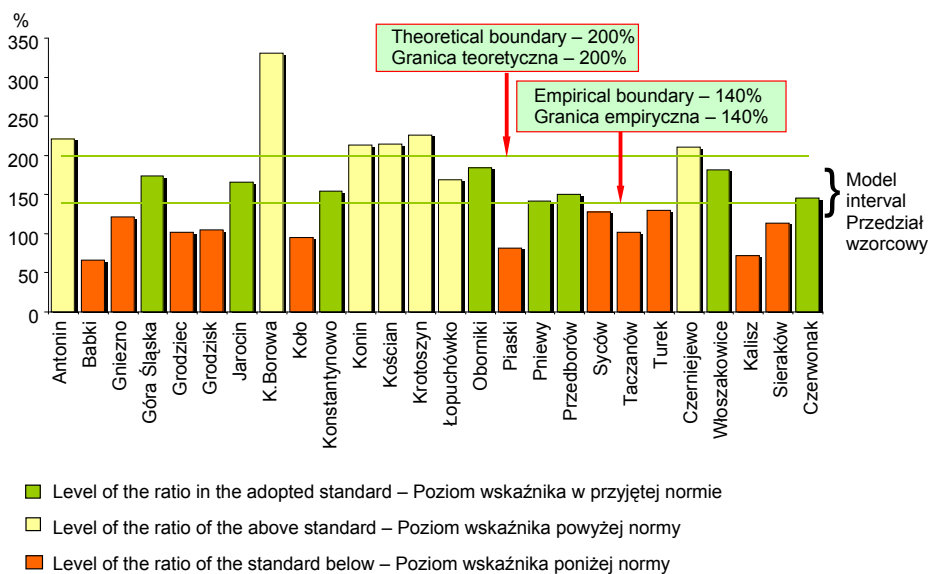
Fig. 1. Mean value of the current ratio in individual forest districts of the Poznań RDSF in years 1998-2001
Rys. 1. Wartość średnia wskaźnika bieżącej płynności finansowej w nadleśnictwach RDLP Poznań w latach 1998-2001
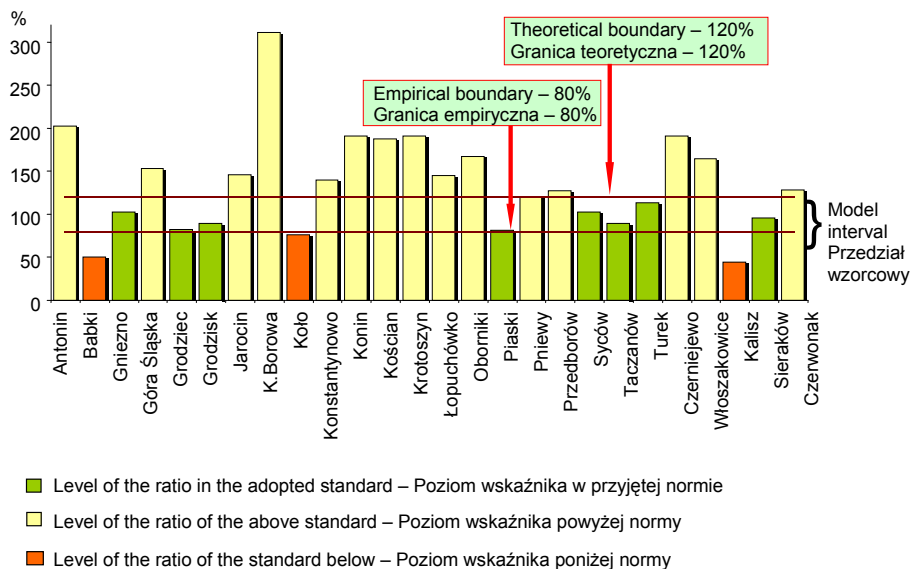

Fig. 2. Mean value of the quick ratio in individual forest districts of the Poznań RDSF in years 1998-2001
Rys. 2. Wartość średnia wskaźnika szybkiej płynności finansowej w nadleśnictwach RDLP Poznań w latach 1998-2001
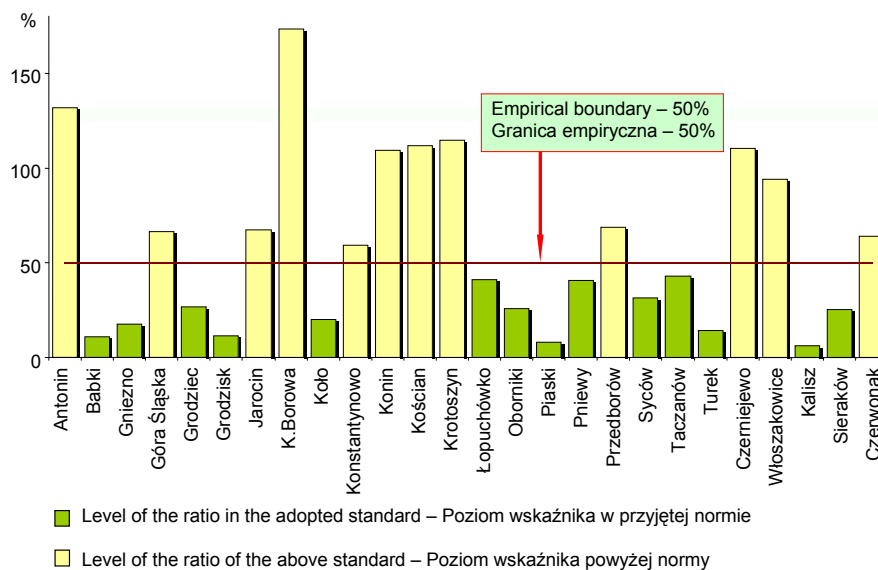
Fig. 3. Mean value of the cash to current liabilities ratio in individual forest districts of the Poznań RDSF in years 1998-2001
Rys. 3. Wartość średnia wskaźnika wypłacalności gotówkowej w nadleśnictwach RDLP Poznań w latach 1998-2001

Forest districts whose financial liquidity ratios revealed simultaneously the following correlations were allocated to **group C**:
Subgroup I:
  – the current ratio = 140-200%,
  – the quick ratio > 120%,
  – the cash to current liabilities ratio > 50%.
Subgroup II:
  – the current ratio < 140%,
  – the quick ratio = 80-120%,
  – the cash to current liabilities ratio < 50%.

The following forest districts were allocated to Subgroup I: Góra Śląska, Jarocin, Konin, Przedborów, Kalisz and Czerwonak. These were forest districts characterized by a high level of the quick ratio ranging from 127% to 165% as well as the high level of the cash to current liabilities ratio from 59 to 93%. The above values testify to an excess of liquid current assets and, hence, their ineffective management from the point of view of the assessment of the financial liquidity. The second subgroup comprised the following forest districts: Gniezno, Grodziec, Grodzisk, Syców, Taczanów, Turek and Sieraków. The current ratio in this subgroup of forest districts was below the lower standard boundary, although it did not fall below 100%.

Forest districts with financial liquidity ratios characterized by levels higher than the adopted standards were allocated to **group D**. In other words, they showed simultaneously the following correlations:

Forest district Nadleśnictwo	Current ratio points Wskaźnik płynności bieżącej	Quick ratio points Wskaźnik płynności szybkiej	Cash to current liabilities ratio points Wskaźnik wypłacalności gotówkowej	Total points Suma punktów
Antonin	1	1	0	2
Babki	0	0	1	1
Gniezno	0	2	1	3
Góra Śląska	2	1	0	3
Grodziec	0	2	1	3
Grodzisk	0	2	1	3
Jarocin	2	1	0	3
K.Borowa	1	1	0	2
Koło	0	0	1	1
Konin	2	1	0	3
Konstantynowo	1	1	0	2
Kościan	1	1	0	2
Krotoszyn	1	1	0	2
Łopuchówko	2	1	1	4
Oborniki	2	1	1	4
Piaski	0	0	1	1
Pniewy	2	1	1	4
Przedborów	2	1	0	3
Syców	0	2	1	3
Taczanów	0	2	1	3
Turek	0	2	1	3
Czerniejewo	1	1	0	2
Kalisz	2	1	0	3
Włoszakowice	0	0	1	1
Sieraków	0	2	1	3
Czerwonak	2	1	0	3

Group A 5 points Grupa A 5 punktów	Group B 4 points Grupa B 4 punkty	Group C 3 points Grupa C 3 punkty	Group D 2 points Grupa D 2 punkty	Group E 1 point Grupa E 1 punkt
	Łopuchówko	Góra Śląska	Antonin	Babki
	Oborniki	Jarocin	Karczma Borowa	Koło
	Pniewy	Konin	Konstantynowo	Piaski
		Przedborów	Kościan	Włoszakowice
		Kalisz	Krotoszyn	
		Czerwonak	Czerniejewo	
		Gniezno		
		Grodziec		
		Grodzisk		
		Syców		
		Taczanów		
		Turek		
		Sieraków		

Liquidity according to the point method in individualforest districts of the Poznań RDSF in years 1998-2001
Płynność finansowa według metody punktowej w nadleśnictwach RDLP Poznań w latach 1998-2001

Fig. 4. Liquidity according to the point method in individualforest districts of the Poznań RDSF in years 1998-2001
Rys. 4. Płynność finansowa według metody punktowej w nadleśnictwach RDLP Poznań w latach 1998-2001

– the current ratio > 200%,
– the quick ratio > 120%,
– the cash to current liabilities ratio > 50%.

High ratio values of the financial liquidity indicate a surplus of current assets which testifies to their ineffective utilization. The current ratio in these forest districts was found to be above the upper standard boundary, although it did not exceed this limit by more than 25 percentage points (with the exception of the Karczma Borowa Forest District). The quick ratio was found significantly above the standard and fluctuated within the boundary of 190% to 200% (the Karczma Borowa Forest District – over 300%). Forest districts from this group could easily cover their current liabilities with cash in about 110-130% (the Karczma Borowa Forest District – over 170%).

Group E comprised those forest districts whose financial liquidity ratios showed simultaneously the following correlations:
– the current ratio < 140%,
– the quick ratio < 80%,
– the cash to current liabilities ratio < 50%.

Forest districts from group E were characterized by a low level of financial liquidity. During the examined period, the ratios of the current and rapid liquidity for this group of forest districts were characterized by an increasing trend and this fact should be evaluated positively. The current ratio was found to be within 60 to 100% interval, whereas the quick ratio was below the lower boundary of the standard but it did not fall below 40%. In the case of this group of forest districts, the low level of the quick ratio (below the assumed standard) did not provide a sufficient justification to conclude that the payment of current liabilities was threatened because the period of the inflow of dues in the examined period was distinctly shorter than the period of settlement of current liabilities (with the exception of the Piaski Forest District [Ankudo-Jankowska 2005]. The cash to current liabilities ratio in this group of forest districts was below 20%.

RECAPITULATION AND CONCLUSIONS

1. Generally speaking, a high level of financial liquidity was observed in the examined period in forest districts. In the forest districts belonging to the Poznań GDSF in years 1998-2001, the mean current ratio was at the level of 135%, the quick ratio – at 124% and the cash to current liabilities ratio – at 52%. In accordance with the assumed standards characterizing monetary economy, the author found a particularly high level of money resources. The management of cash resources limited to short-term and overnight bank accounts shows that the concerned forest districts used these resources to generate profit very ineptly. In this situation, it seems necessary to consider possibilities of better management of these resources (e.g. investment funds, stockbroker's office or the forest district own cash flow departments).

2. However, it should be emphasized that traditional ratios of financial liquidity calculated with the assistance of the static method do not reflect changes in the financial liquidity during the year. Due to the seasonal character of forest operations as well as the cyclic nature of income from timber sales, many forest districts may show higher levels of cash towards the end of the calendar year. In addition, another common practice in many forest districts is the custom of putting aside some cash to pay for the ex-

penditures from the first quarter of the following year. This explains, at least partly, the general high level of cash.

3. Considerable variations were determined in the level of financial liquidity in individual forest districts. The current ratio in the examined period (with the exception of the Karczma Borowa Forest District) fell within the interval of 66% to 226%, the quick ratio − from 50% to 202% and the cash to current liabilities ratio − fluctuated in the interval from 10% to 131%. During the first three years of the research period, the analysed ratios of the financial liquidity for all forest districts exhibited a growing trend but they decreased during the last year.

4. Differences in the level of financial liquidity of the examined forest districts are also confirmed by the point method of evaluation of the financial liquidity of these enterprises. The performed investigations allowed the author to allocate the examined forest districts into four out of five possible groups and, therefore, to categorise them with regard to their liquidity. It was found that, on the basis of the adopted criteria indicating the most profitable management of the current assets from the point of view of the control of financial liquidity, none of the examined forest districts qualified to be allocated to group A. This may have been caused by the fact that the adopted intervals of the theoretical ratios of the current and rapid liquidity were verified only partially.

5. This study presents general assumptions of the point method of the assessment of the financial liquidity of forest districts and its wider application requires further investigations.

The employed point method used traditional ratios of the financial liquidity which should, in further investigations, be supplemented by other ratios which can define this area checking the possibility of the application of ratios which can determine the relationship of the current capital to selected components of current assets. Furthermore, it seems necessary to analyse interrelationships between short-term liabilities and current liabilities.

The performed investigations revealed a relatively slight difference between the level of the current ratio and the level of the quick ratio. On average, this difference amounted to 20 percentage points. That is why, it appears desirable to decrease the model interval for the current ratio in the point assessment of the financial liquidity of forest districts.

In the course of successive stages of investigations, it seems desirable to pay attention to the possibility of correction of the financial liquidity ratios involving the determination of the degree of liquidity of current assets according to economical criteria specifying real possibilities of their liquidation.

REFERENCES

Ankudo-Jankowska A., 2005. Problemy analizy wskaźnikowej działalności gospodarczej nadleśnictw Regionalenj Dyrekcji Lasów Państwowych w Poznaniu [Problems of indicator analysis of the economic activities of forest districts belonging to the Regional Directorate of State Forests in Poznań]. Maszyn. Rozpr. dokt. Kat. Ekon. Leśn. AR Poznań [in Polish].

Olzacka B., Pałczyńska-Gościniak R., 2000. Jak ocenić firmę. Metoda i przykłady liczbowe [How to assess a company. Methodology and numerical examples]. Ośr. Doradz. Dosk. Kadr Gdańsk [in Polish].

Sierpińska M., Wędzki D., 1997. Zarządzanie płynnością finansową w przedsiębiorstwie [Management of financial liquidity in an enterprise]. PWN Warszawa [in Polish].

Waśniewski T., Skoczylas W., 2002. Teoria i praktyka analizy finansowej w przedsiębiorstwie [Theory and practice of financial analysis in an enterprise]. Fund. Rozw. Rachunk. w Polsce Warszawa [in Polish].

PRÓBA ZASTOSOWANIA METODY PUNKTOWEJ OCENY PŁYNNOŚCI FINANSOWEJ DO KATEGORYZACJI NADLEŚNICTW W ZAKRESIE ICH WYPŁACALNOŚCI

Streszczenie. W pracy podjęto próbę opracowania metody punktowej oceny płynności finansowej do kategoryzacji nadleśnictw w zakresie ich wypłacalności. Badaniami objęto 26 nadleśnictw Regionalnej Dyrekcji Lasów Państwowych w Poznaniu. Na podstawie analizy wskaźników płynności finansowej oraz zastosowanej metody punktowej stwierdzono w badanym okresie (1998-2001) ogólnie wysoki poziom płynności finansowej, a także znaczne jego zróżnicowanie w poszczególnych nadleśnictwach. W pracy przedstawiono ogólne założenia punktowej metody oceny płynności finansowej nadleśnictw. W celu szerszego jej zastosowania wymagane są dalsze badania.

Słowa kluczowe: ekonomika leśnictwa, analiza wskaźnikowa, analiza płynności finansowej, wskaźniki płynności finansowej