METHODS FOR AN ACCOUNTING ESTIMATION OF COMPANY'S CAPITAL ADEQUACY

Živko Bergant, PhD
College of Accounting and Finance, Ljubljana, Slovenia
zivko.bergant@siol.net
Igor Manohin, Msc
College of Accounting and Finance, Ljubljana, Slovenia
manohin.igor@telemach.net

ABSTRACT

The capital adequacy of a company is basic information about the risk of solvency that means a risk not to be able to settle obligations on long-term. Monitoring capital adequacy is mostly required by actual insolvency legislation. The author gives an overview of practical approaches to accounting analysis of company's capital adequacy. In doing so, he distinguishes between basic and implemented methods, and addresses their strengths and weaknesses. Among these methods, also the fastest one is presented. This new method allows the first estimate even if a company has not made balance sheet yet. Therefore it is very useful for monitoring company's risk about its solvency.

Keywords: *business analysis, capital adequacy of the company, net working capital, financial mediating position*

1. INTRODUCTION

The company's ability to establish and maintain financial balance, thereby achieving its optimal solvency, is defined as financial stability. It requires proper liquidity reserves to maintain solvency of the company. (Bergant, 2014,

87). A basic information about financial stability is information about capital adequacy of a company (Bergant, 2014, 88).

The monitoring of a company's capital adequacy requires both the Code of Business Financial Principles (*KPFN*, points 4.3 and 4.54) as well as Slovenian bankruptcy legislation. Bankruptcy legislation in other countries do not deal with notion of capital adequacy. They deal mainly with vertical financial structure and some wrong explained ratios (e.g. Bergant, 2015a) that is in our opinion much less effective way. There we cannot find an approach through actual and needed net working capital that is used in this article. Detailed review of this theoretical field is given in Bergant (2015 and 2018). These statements are the main reason for relatively short and narrow cited references at the end of article.

The assessment and monitoring capital adequacy are therefore the two most important tasks of analyzing financial operations, as a basis for the provision of solvency and financial stability of the company.

It should be emphasized that the accounting assessment of capital adequacy has some shortcomings, but it is an inevitable starting point for more detailed assessments and the proper formulation of a company's financial and operating policies. Therefore, it is essential to know the relevant methods of analysis and of course, the expressive power of the information obtained.

2. METHODS FOR ASSESSMENT COMPANY'S CAPITAL ADEQUACY

2.1. CLASSIFICATION OF METHODS

There are many possible approaches to assessing an entity's capital adequacy based on accounting data, so it is useful to sort them out in some way. In terms of materiality and expressive power of the information generated, we can distinguish two groups of methods of assessing capital adequacy based on accounting data, namely:

1. a basic method based on the theoretical definition of actual and required working capital and on the determination of the difference between the two categories;
2. derived (indirect) methods resulting from different types of analysis of the financial position of the company and therefore also from different types of data.

The main assumption of all the methods discussed is the principle of long-term financing of permanent current assets, that is, inventories (*I*) and spontaneous receivables. This principle allows minimal risk of insolvency. It is confirmed by empirical research (Bergant, 2012).

2.2. BASIC METHOD

The starting point for analyzing a company's capital adequacy is the difference between actual (NWC_{act}) and required (needed) net working capital (NWC_{need}). This gives us the first estimate of the working capital deficit (NWC_{def}) or its surplus (NWC_{sur}). This is illustrated by the following equations:

$$NWC_{def} = NWC_{need} - NWC_{act}, \tag{1}$$

or:

$$NWC_{def} = STOR + I - STOP + STL - STA = STOR + I - STOP + LTA - LTL. \tag{2}$$

Abbreviations in above equations mean:

STOR   *Short-term operating receivables* (*spontaneous receivables*)
I   *Inventories*
STOP   *Short-term operating payables* (*spontaneous liabilities*)
STL   *Short-term liabilities*
STA   *Short-term assets* (*current assets*)
LTA   *Long-term assets*
LTL   *Long-term liabilities*

Equations 1 and 2 show the baseline definition of capital adequacy. It is a starting point, because NWC_{need} is financing only permanent short-term assets (STOR + I) and does not include the required net working capital reserve, which is necessary for managing the risks in the business. Only with addition of this reserve, adequate working capital (NWC_{adeq}) is sufficiently assessed.

An estimate of the surplus *NWC* is obtained when the result of Equations 1 and 2 is negative. Both equations show that the capital adequacy of a company (expressed as a deficit or a surplus) depends on the actual and required (needed) net working capital. This means that equations illustrate causal relationship. In accounting, there is a rule about business flows which says that always exists an *operational flow*, if there is a *causal consequent flow* (Bergant, 2020).

Equation 3 shows an operational flow that is connected with equations 1 and 2:

$$NWC_{def} = STFD - STFI - Cash \tag{3}$$

In accordance with equation 3, *NWC* deficit can be calculated by short-term financial debts (*STFD*), short-term financial investments (*STFI*) and cash which includes also cash equivalents.

When the result of equation 3 is negative, the company has *NWC* surplus.

Equation 3 also represent the fastest estimation of capital adequacy, because it needs only three items for the calculation. These three items are avail-

able without final balance sheet practically every day at the company. This allows to monitor trends of company's capital adequacy almost every day and to get information about consequences of daily business decisions regarding the risk of solvency. The weakness of equation 3 is that it does not show causes of these trends.

The basic method therefore has two ways of calculating capital adequacy (Equations 1 and 3).

This is shown in Table 1.

Table 1: Calculation of capital adequacy of the company X

	Element	2016	2017	Difference	Index
1	Long-term assets (*LTA*)	1.024.176	1.032.595	8.419	101
2	Long-term liabilities (*LTL*)	1.522.139	1.581.236	59.097	104
3	*NWC* (2 − 1)	497.963	548.641	50.678	110
4	*STOR*	500.642	471.660	-28.982	94
5	*I*	236.255	264.215	27.960	112
6	*STOP*	210.295	228.721	18.426	109
7	*NWC*$_{need}$ (4+5−6)	526.602	507.154	-19.448	96
8	*STFI*	52.581	34.895	-17.686	66
9	*STFD*	105.269	27.525	-77.744	26
10	Cash	24.049	34.117	10.068	142
11	*NWC*$_{def}$ (7−3) = (9−8−10)	28.639	-41.487	-70.126	

Table 1 shows the following:

1. The net working capital of the company increased (by EUR 50.5678) or 10% due to a faster increase in long-term resources (EUR 59.097) than the increase in long-term investments (EUR 8.419).
2. The net working capital needed decreased (despite an increase in inventories by EUR 27,960) due to a decrease in operating receivables (by EUR 28,982) and an increase in short-term operating liabilities (by EUR 18426).
3. Both movements resulted in a change in the working capital deficit (EUR 28,639) to a surplus (EUR 41,487).
4. The accuracy of the calculation is also confirmed by the shorter calculation of the deficit or surplus (Equation 3).
5. A shorter calculation (as an operational flow) indicates that the company spent the entire working capital increase (EUR 70,126) on repayment of short-term loans, which were further reduced by monetization of short-term financial investments (EUR 17,686). The residue of

monetized short-term financial investments increased cash assets by EUR 10,068.

The company *X* has therefore improved its capital adequacy, which is reflected in a significant reduction in short-term debt. An excess of a company's working capital is in principle a liquidity reserve for managing business risks and/or its own source of investment capacity.

2.3. DERIVED METHODS

2.3.1. Calculation from data about short-term finance-mediating position

Data about short-term finance-mediating position (net short-term receivable – *NSTR* or net short-term debt – *NSTD)* provide a possibility to calculate surplus or deficit *NWC*. This is shown in table 2.

Table 2: Elements of fast estimation capital adequacy

Relationship between *STOP* and *STOR*	Finance-mediating position	Surplus or deficit of *NWC*	Calculation of capital adequacy
STOP > STOR	*NSTR*	*Surplus*	*NSTR +(STOP–STOR)*
STOP > STOR	*NSTD > (STOP – STOR)*	*Deficit*	*NSTD – (STOP – STOR)*
STOP > STOR	*NSTD < (STOP – STOR)*	*Surplus*	*(STOP – STOR) – NSTD*
STOR > STOP	*NSTD*	*Deficit*	*NSTD + (STOR – STOP)*
STOR > STOP	*NSTR > (STOR – STOP)*	*Surplus*	*NSTR – (STOR – STOP)*
STOR > STOP	*NSTR < (STOR – NSTD)*	*Deficit*	*(STOR – STOP) – NSTR*

Table 2 shows that a company may have a net working capital deficit despite being a net short-term creditor (*STOP < STOR)*. It can also have a net working capital surplus despite being a net short-term borrower (*STOR< STOP*). This means that a company may incur a deficit from networking capital surplus even though the net short-term receivable (or net long-term debt) does not change.

However, it should be emphasized that this method does not show the reasons for the change in capital adequacy (the calculation is therefore not a causal consequence of the flow), nor does it show how the company changed its capital adequacy. The calculation therefore is neither an operational flow, but has mainly computational and to some extent also an analytical character.

2.3.2. Calculation with capital adequacy ratio[1]

The capital adequacy ratio (R_1) is a part of spontaneous short-term liabilities that finances permanent current assets (reduced by net working capital):

$$R_1 = \frac{STOR + I - NWC}{STOP} \tag{4}$$

It shows an estimate of the net working capital deficit or surplus, measured (divided) by spontaneous liabilities (Bergant, 2018, 9). If the value of the indicator is greater than 1, the company has a deficit, otherwise it has a working capital surplus. On this basis is calculation of NWC deficit as follows:

$$NWC_{def} = (R_1 - 1)STOP. \tag{5}$$

The method shown with the equation 4 provides neither a causal nor an operational relationship. Nevertheless it allows some additional analysis. Its major advantage is that a capital adequacy ratio (R_1) provides an information indicating the weight (severity) of the net working capital deficit or surplus. It is expressed in the proportion of operating liabilities. For example, if R_1 were 1.3, the company would have to extend the average maturity of its spontaneous liabilities (*STOP)* by as much as 30%. In such a case, the deficit of net working capital would no longer be present, since it would be replaced by operating liabilities.

2.3.3. Calculation with the rate of short-term financing permanent current assets[2]

The rate of short-term financing permanent current assets is calculated as:

$$R_3 = \frac{STOR + I - NWC}{STOR + I} = \frac{STL - STFR - Cash}{STOR + Inv} \tag{5}$$

On this basis is calculation of NWC deficit as follows:

$$NWC_{def} = R_3(I + STOR) - STOP. \tag{6}$$

The method shown in Equation 6 is not capable of analyzing the causes of changes in capital adequacy, however has its analytical value, in particular in terms of the expressive power of indicator R_3.

R_3 shows how much permanent current assets is short-term financed. Its decrease shows an increase in the company's ability to settle its short-term debts. A higher level of short-term financing of permanent current assets increases the risk of creditors. In this way R_3 emphasizes short-term indebtedness of the company.

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[1] This indicator was presented at international conference in Zadar (Bergant, 2018).

[2] This indicator was presented at international conference in Zadar (Bergant, ibid).

Calculation of proportion of permanent working capital, which is financed by short-term loans is as follows:

$$\frac{STFD}{STOR + I} = R_3 \ \left(\frac{R_1 - 1}{R_1} \right).$$

3. CONCLUSION

The main users of information about capital adequacy are management, investors and creditors. It is important also for business partners and vice versa: information about business partners' capital adequacy is very important for business policy of the company. Therefore, it is important to be able to have such an information. Special users of such an information are auditors who must consider company risk about on-going concern.

The purpose of the paper was to give an overview of some accounting approaches to assessing the capital adequacy of firms. The basic characteristics of each method are given. This makes it possible to use different methods in different circumstances and with different available data.

However, a significant disadvantage of the models under consideration is shown when a company already has problems with solvency and therefore pays later to suppliers. In such case, calculated net working capital deficit is generally too low in these models and too high in surplus. The estimate must then be corrected by a corresponding decrease or increase in operating liabilities, using the average conversion factor. Here we take into account the desired payment period (e.g. 30 days) and replace it with the actual one. The result is a corresponding reduction in spontaneous liabilities and an increase in the required working capital by the same amount.

The next adjustment is possible with regard to the estimation of required inventories and spontaneous receivables in the case that current balance sheet do not reflect actual needs. Such adjustments affect the estimation of net working capital needs and consequently the estimation of the net working capital deficit or surplus.

Of course, no accounting model is without weaknesses. A number of weaknesses in accounting and / or analysis of accounting data that are the result of accounting rules and business policy are listed in the professional literature, which should be carefully considered in the concrete analysis.

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METODE RAČUNOVOSTVENIH PROCJENA ADEKVATNOSTI KAPITALA TVRTKE

SAŽETAK RADA

Adekvatnost kapitala tvrtke predstavlja osnovnu informaciju o riziku solventnosti tj. riziku nemogućnosti dugotrajnog podmirivanja obveza. Aktualno zakonodovstvo vezano za insolventnost najviše zahtijeva praćenje adekvatnosti kapitala. Autor daje pregled praktičnih pristupa u računovodstvenoj analizi adekvatnosti kapitala tvrtke. Pri tome razlikuje osnovne I implementirane metode i naglašava njihove prednosti i nedostatke. Između tih metoda odabrana je najbrža, koja omogućava prvu procjenu čak i u slučaju da tvrtka još nije pripremila bilancu. Stoga je veoma korisna za praćenje rizika solventnosti.

Ključne riječi: *poslovna analiza, adekvatnost kapitala tvrtke, neto operativni capital, pozicija financijskog posredovanja*