

## POST-CRISIS INFLUENCE ON COST OF MONEY AND INTRINSIC LIQUIDITY VALUE IN NON-PROFIT ORGANIZATIONS\*

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**Abstract.** *Cash maintained in nonprofit organizations is not a source of any interests and although the close to cash assets together with credit lines available for enterprise are connected with resigning from realization of a part of incomes or costs, firms decide to maintain some liquidity reserves. This does not only result from transactional needs, but also from precautional and speculative reasons. Investment in liquid reserves resulting from speculative demand for money may be assessed by usage of capital budgeting methods like: NPV or IRR or as a call option. In the article, each of these aspects of liquidity was taken into consideration and presented from nonprofit perspective. Nonprofit liquidity value determination may often significantly contribute to the solution of working capital management problems in these organizations.*

**Key Words:** *Intrinsic liquidity value, Nonprofit financial management, financial liquidity*

### INTRODUCTION

Organizations can work as taxed commercial businesses or as non-taxed nonprofit organizations (Lane, Longstreth, Nixon, 2001, p. 1-17). As is widely believed, the advantage of commercially driven businesses is more effective management than in government controlled organizations (Nowicki, 2004, p. 29). In this paper we study the nonprofit organization liquidity management. We do that in the context of three different situations by comparison of: a non-taxed government controlled organization, a non-taxed nonprofit organization and a taxed commercially managed business (Berger, 2008, p. 46-47). In an after-crisis weak economic situation, many nonprofit organizations (NPO) face, on the one side, smaller cash inflows and financing possibilities and, on the other side, a higher demand on their services. After the crisis, those organizations face specific incumbent needs, which are the result of higher unemployment and other similar factors (Zietlow, 2010, p. 238-248).

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The main financial aim of the nonprofit organization is not the maximization of firm value but the best realization of the mission of that organization (Zietlow, Hankin, Seidner, 2007, p. 6-7). But for the assessment of financial decision of a NPO, analogous rules to the rules for for-profit firms should be used (Brigham, Gapenski, 2000, p. 524-536). According to those rules, the higher the risk is, the higher the cost of money rate should be used to evaluate the future results of a current decision. Of course, that is also positively linked with the level of efficiency and effectiveness in realization of the NPO mission. The cost of financing net liquid assets (working capital) depends on the risk included in the organization strategy of financing and/or investment in liquidity.

What is the value we may attribute to liquidity for a non-profit organization? Managers in non-profit organizations have a lot of important reasons why their enterprises should possess some money resources reserves even if a current interest rate is positive (Kim 1998). The reasons may be classified into three main groups:

- the necessity of current expenses financing (transactional reason)
- the fear of future cash flows uncertainty (precautional reason)
- the future interest rate level uncertainty (speculative reason)

Liquidity, especially cash, understood as money resources in organization safe is not a source of any or small interests. Maintaining liquidity reserve in the non-profit organization is a result of belief that the value of lost income on account of interest will be recompensed by the benefits for incumbents of the non-profit organization (Kim 1998, Lee 1990). The hypothetical benefits are from higher profitability that organization mission will be completed, thanks to adequate liquidity level. Then organizations maintaining such reserves assume that in equilibrium conditions, marginal liquidity value is equal to the interest rate of the Treasury Bonds investments (or interest rate being a cost of short-term credit we took out to obtain liquidity). Without doubt, the statement that liquidity does not bring any benefits may be rejected at once. From such a perspective, liquidity would be treated as a "necessary evil" linked only to the costs resulting from interests lost. Another incorrect conclusion would be the assumption that present net value always equals zero. It would be a result of the statement that due to the fact that marginal liquidity value is always equal to interests lost, cash reserves size has no significance at all (Henderson 1989, p. 95; Kim 1998, Lee 1990, p. 540).

For an organization being in possession of liquid reserves, the marginal utility of liquidity changes. Along with the growth in the amount of cash possessed, the marginal cash value decreases. So it may be noticed that for the market Treasury Bond rate or short-term credit rate, it pays to keep some money reserve only to a specific level. There is a point corresponding with the optimal (critical) liquidity level, up to which the amount of liquid assesses in the non-profit organization may be increased at a profit (Washam 1989, p.28; Henderson 1989, Lee 1990). The term: liquidity degree (or level) is connected with the concept of "liquidity container", known from economic literature. The more the liquid assesses (which may be easily convertible into known amount of money resources and sensible only to a slight value change risk), the higher the enterprise liquidity level.

After crossing this *critical liquidity level*, the Treasury Bonds sale or taking out a short-term debt is unprofitable for the non-profit organization. The marginal benefit from higher cash reserve is lower than the cost of interests lost (Rast 2000, Washam 1989; Henderson 1989).

## LIQUIDITY DEFINITION

In economic literature liquidity is defined in many various ways. It is understood as an *enterprise solvency* i.e. the ability to regulate the obligations that result from usual transactions, unexpected events or situations enabling "bargain" purchase of goods (Henderson 1989, Lee 1990). On the other hand, liquidity is considered as *transaction space* on the financial market. It occurs when there is "liberty" of carrying out "huge" sale or purchase transactions on the market, with no fear that you will not find appropriate demand or supply. Another popular definition of liquidity is that it is *assesses convertibility* into other assesses. In other words, liquidity is the easiness of carrying out the exchange transactions with low transaction costs.

There are important connections between these three views on liquidity. If there appears the necessity of regulating an obligation exceeding cash reserves in enterprise possession, the possibility of repayment depends on whether it is possible to exchange assesses possessed for cash or not. If so, it will be paid off on time. At the same time, the possibility of such an exchange depends on the capacity of the non-profit organization assesses market. It means that the ability to regulate non-profit organization obligations (short-term solvency) is dependent on the capacity of the market of assesses constituting non-profit organization reserves (or more generally: its property). Financial liquidity is therefore an internal category of the non-profit organization, influenced both by the managing team and other factors occurring inside the non-profit organization or in its surroundings. The long-term liquidity is totally disregarded here (Washam 1989, Henderson 1989, Lee 1990).

We will understand non-profit organization financial liquidity as *liquid assesses reserve, which may be used in order to carry out transaction without any time or financial loss* resulting from normal operational activity (transactional liquidity) or because of unexpected needs (precautional liquidity) or because of attractive profit opportunities expectations (speculative liquidity) (Washam 1989, Beck 1993, Lee 1990).

The non-profit organization transactional and precautional liquidities on sufficient level enable prompt fulfillment of internal (salary payments, etc.) and external creditors (suppliers payment, etc.). The non-profit organization financial liquidity (operational and precautional) usually concerns operational activity and is not linked to investment activity. If it comes to enfeeblement or loss of operational and precautional liquidity in the non-profit organization, it menaces with (Scherr 1989, Washam 1989, Beck 1993):

- lowering decision making elasticity
- deteriorating non-profit organization's ability to set the organization mission
- higher foreign capital raising cost
- demobilization of donors
- worsening the position of the non-profit organization.

In order to avoid such dangers, constant monitoring of non-profit organization financial liquidity is necessary, and then taking actions guaranteeing its economic-financial equilibrium.

## OPTION LIQUIDITY VALUE

Liquid resources resulting from the "speculative" liquidity demand may bring some benefits, but do not have to. As we can see, liquidity exceeding the every day transactions

demand, provides non-profit organization with an option to take up unexpected projects worth realizing to improve the realization of the mission (Washam 1989, Beck 1993). Keeping an access to liquidity that exceeds transactional needs, the non-profit organization is in possession of call option.

For example, if in the period when a non-profit organization possesses speculative liquidity sources, there appears purchase possibility of assesses whose normal long-term value amounts to 5 million euros and at a given moment, they can be purchased for 2 million euros, the NPV of such a "project" will come to 3 million euros. If the non-profit organization possesses the required money reserves, it will have the benefit of 3 million euros. If the non-profit organization does not have the access to additional liquidity – it will lose the possibility of investment project realization together with 3 million euros. Typical options have a value equal to the assesses value reduced by the price of realization and option price. If purchased assesses value exceeds the sum of those two quantities, speculative liquidity reserves generates profits equal to NPV of the project taken. It is about the situation while the speculative reserves are being used, i.e. when operational net cash flow is not sufficient to cover costs resulting from taking up the investment (Scherr 1989, Washam 1989, Beck 1993). In other case, there is no profit from additional liquidity resources doming from speculative demand.

Option liquidity value is dependent on 6 factors (Beck 1993). First of them is the present net value project value. If the potential project profitability increases, the value of project taking option will increase as well. Another factor determining liquidity value is the non-profit organization cash flow. If other factors are constant, option value will increase along with the decrease of operational cash flows level, and will fall together with those flows level increase.

It is because, along with increased operational cash flow level, the probability that the unexpected investment project cost will be covered with those flow increases as well. Therefore, the probability of using additional liquidity linked to speculative demand is decreased. The third and the forth factor determining option liquidity value is the cash flows and project cost changeability.

If operational cash flows changeability increases, we are faced with lower probability of using additional speculative liquidity – and therefore the option liquidity value decreases. The probability of using additional liquidity decreases along with increase in project cost changeability. Such increase in changeability is also accompanied by the diminishing project profitability.

The other factors influencing the option liquidity value are: interest rate and the correlation between operational cash flows and costs. If interest rate increases, present project value will decrease, and then – option liquidity value will decrease as well. But correlation between operational cash flows and costs is quite different. If this correlation increases, option liquidity value will increase too. It results from the fact that the probability of using to take up the investment some operational cash flows omitting liquid speculative reserves will be decreased then (Hill 1995, Puxty 1992).

SETTING THE OPTIMAL LIQUIDITY LEVEL ON THE BASIS OF ITS VALUE

It is profitable to increase liquidity level but only to a specific optimal quantity. It results from the current market liquidity value (short-term deposit interest rate or short-term credit interest rate available for a non-profit organization). The point to which non-profit organization liquidity level may be increased at a benefit for incumbents of the non-profit organization, results from equalizing of market liquidity value and internal non-profit organization liquidity value (i.e. for  $v_m = v_i$ ):

$$V_i(pp_{opt}) = v_m \tag{1}$$

where:  $V_i(pp_{opt})$  – internal liquidity value corresponding to the optimal non-profit organization financial liquidity value.

After crossing its optimal liquidity level ( $pp_{opt}$ ) increased liquidity (e.g. by abandoning to deposit the resources and/or liquidation of existing deposits, or taking short-term debt) is uneconomic for the non-profit organization. That unprofitability among other things results from the fact that marginal utility of higher financial liquidity level is lower than the cost of lost interests benefits. This cost arises as a result of the loss of open deposit interest linked profits in case of resignation from depositing the sources or unnecessarily incurred financial costs if the enterprise uses "unnecessary" outside financing. Optimal financial liquidity level ( $pp_{opt}$ ) being a result of comparing the market liquidity level  $v_m$ , available for a non-profit organization, and the internal liquidity value  $v_i(pp_{opt})$ .

The following conditions are implied by these facts: carrying out investment 2., taking up the credit 3., and equilibrium 4.

$$\text{carrying out investment condition: } v_i < v_m \tag{2}$$

$$\text{taking up the credit condition: } v_i > v_m \tag{3}$$

$$\text{equilibrium condition (optimal liquidity level): } v_i = v_m \tag{4}$$

where:  $v_i$  – internal financial liquidity value in the non-profit organization,  
 $v_m$  – market financial liquidity value (available for the non-profit organization).

Example: X non-profit organization has a short-term bank loan A at its disposal.  $v_m$  is the cost of this loan. If the non-profit organization management estimates that the internal liquidity value amounts to:  $v_i$ , it will delay taking the loan until the internal liquidity value  $v_i$  is higher than market value  $v_m$ . When these two values become equal, the enterprise's financial liquidity value will reach the optimal value. But if  $v_i$  exceeds the  $v_m$  level, the firm will demand external financing.

Current finance management begins with determining the optimal liquidity level because it guarantees the best effects (McMenamin 1999). In order to determine this level, the information about internal liquidity value is needed (about the course of the curve representing it) and non-profit organization market liquidity value must be known too.

Financing of the liquidity has its cost depending on risk linked with liquidity strategies used by the financed organization. If we have higher risk, we will have higher cost of financing (cost of money) and as a result other financially measured effects of nonprofit organization.

The cost of financing of liquidity depends on the kind of financing, on the level of liquidity in relation to sales and last but not least on the danger for the nonprofit organization mission caused by risk exposition.

Choosing between various levels of liquidity in relation to sales, we can use one out of the following three strategies:

- restrictive strategy when for the realization of the mission of the nonprofit organization we use the most risky but the cheapest, the smallest possible, level of liquidity,
- moderate strategy when for the realization of the mission of the nonprofit organization we moderate between risk and costs of holding liquidity, and
- flexible strategy when for the realization of the mission of the nonprofit organization we use the most expensive and rather high levels of working capital wanting to hedge the nonprofit organization before the risk of shortage of liquidity.

Risk exposition depends on the kind of mission realized by the nonprofit organization. If risk exposition is higher, then it is smarter to choose more flexible and more conservative solutions in order to have better results. It works in the opposite direction as well. If the mission realized by the nonprofit organization is safer, more restrictive and more aggressive strategies will give better results.

The nonprofit organization property consists of total assets, i.e. fixed assets and current assets known also as liquid assets. We can see that property as fixed capital and working capital as well. Generally, working capital equal to current assets is defined as a sum of inventory, short term receivables (including all the accounts receivable for deliveries and services regardless of the maturity date) and short-term investments (cash and its equivalents) as well as short-term prepaid expenses (Mueller 1953; Graber 1948; Khoury 1999; Cote 1999). Money tied in liquid assets serves the nonprofit organization as protection against risk (Merton 1999, p. 506; Lofthouse 2005; p. 27-28; Parrino 2008, p. 224-233, Poteshman 2005, s. 21-60) but that money is also considered an investment. It is because the nonprofit organization resigns from instant utilization of resources to realization of the mission for possible future benefits that could be used for future realization of the mission (Levy 1999, p. 6; Reilly 1992, p. 6; Fabozzi 1999, p. 214).

Liquidity level is the effect of processes linked to the production organization or services realization. So, it results from the processes that are operational by nature and therefore correspond to the willingness to produce on time services that are probably desired by final incumbents of organization mission (Baumol 1952, Beck 2005, Beranek 1963, Emery 1988, Gallinger 1986, Holmstrom 2001, Kim 1998, Kim 1978, Lyn 1996, Tobin 1958, Stone 1972, Miller 1966, Miller 1996, Myers 1998, Opler 1999). It exerts influence mainly on the inventory level and belongs to the area of interest of operational management (Peterson 1979, s. 67-69; Orlicky 1975, s.17-19; Plossl 1985, s. 421-424). Nevertheless, current assets are also the result of active customer winning and maintaining policy (Bougheas 2009). Such policy is executed by finding an offer and a specific market where the product or service is sold. This policy consequences are reflected in the final products inventory level and accounts receivable in short term.

Among the motivating factors for investing in current assets, one may also mention uncertainty and risk. Due to uncertainty and risk, it is necessary to stock up circumspect (cautionary) cash, material and resources reserves that are inevitable in maintaining the continuity of production and preparing final services needed for realization of the nonprofit organization mission.

Many organizations could act in a fast changing environment where the prices of the needed materials and resources are a subject to constant change. Other factors – like exchange rates for instance, are very changeable, too. It justifies keeping additional cash sources allotted for realization of built-in call options (American type) by buying the raw materials cheaper than the long term expected equilibrium price would suggest.

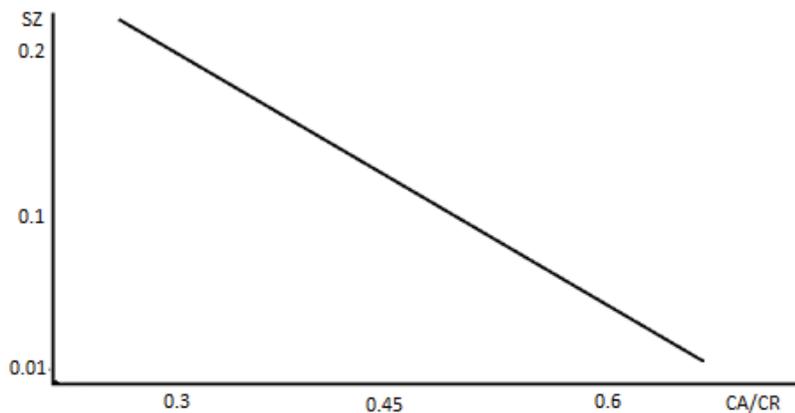
Nonprofit organization relationships with suppliers of materials, resources and services that are necessary to produce and sell final products usually result in adjourning the payments. Such a situation creates accounts payable and employees (who are to some extent internal services providers). We will call such categories of obligations the non financial current obligations in order to differentiate between them and current obligations that result from taking on financial obligations, e.g. short term debt.

Required payments postponement exerts impact on reducing the demand for these nonprofit organization resources that are engaged in current asset financing. Current assets reduced by non financial current obligations (non financial short term obligations) are called net current assets. Net current assets are the resources invested by the company in current assets equated with the capital tied in these assets.

WORKING CAPITAL INVESTMENT STRATEGIES AND COST OF FINANCING

It is necessary to consider the influence of each strategy of investment in the liquidity on the rate of cost of money financing non-profit organization and the influence on its economic results.

In the first case, one must assume that capital providers (lenders) seriously consider while defining their claims to rates of return the liquidity investment strategy chosen by the organization they invested in. Let us also assume that the correction SZ function graph connected with strategy choice could be even and linear (Fig. 1).



**Fig. 1** The shape of line of correction SZ as a function of CA/CR in the SZ1 variant.  
 Source: hypothetical data

**SZ1 variant.** We assume here that capital providers take into consideration the non-profit organization liquidity investment strategy while defining their claims as regards the

rates of return. Restrictive strategy is perceived as more risky and therefore depending on investors risk aversion level, they tend to ascribe to the financed nonprofit organization applying restrictive strategy an additional expected risk premium. To put it simply, let us assume that ascribing the additional risk premium for applied liquidity investment strategy is reflected in the value of  $\beta$  risk coefficient. For each strategy, the  $\beta$  risk coefficient will be corrected by the corrective coefficient SZ corresponding to that specific strategy in relation to the CA/CR situation.

The risk free rate is 4%, and the rate of return on market portfolio is 18%. If XYZ nonprofit organization is a representative of W sector for which the non-leveraged risk coefficient  $\beta_u = 0.77$ . On the basis of Hamada relation, we can estimate the equity cost rate that is financing that organization in case of each of the three strategies in the SZ1 variant.

$$\beta_l = \beta_u \times \left(1 + (1 - T) \times \frac{D}{E}\right) = 0.77 \times \left(1 + 0.81 \times \frac{0.4}{0.6}\right) = 1.19$$

Where: T – effective tax rate<sup>1</sup>, D – organization financing capital coming from creditors (a sum of short term debt and long term debt  $D=D_s+D_l$ ), E – organization financing capital coming from founders/owners of the organization,  $\beta$  – risk coefficient,  $\beta_u$  – risk coefficient for an assets of the non-profit organization that do not use debt,  $\beta_l$  – risk coefficient for an organization applying the system of financing by creditors capital (here we have both asset and financial risk).

For restrictive strategy, where CA/CR is 0.3; the SZ risk premium is 0.2:

$$\begin{aligned} \beta_{lr}^* &= \beta_u \times \left(1 + (1 - T) \times \frac{D}{E}\right) \times (1 + SZ) \\ &= 0.77 \times \left(1 + 0.81 \times \frac{0.4}{0.6}\right) \times 1.2 = 1.19 \times 1.2 = 1.43 \end{aligned}$$

Where: SZ – risk premium correction is dependent on the liquidity investment strategy.

For moderate strategy, where CA/CR is 0.45 the SZ risk premium is 0.1:

$$\begin{aligned} \beta_{lm}^* &= \beta_u \times \left(1 + (1 - T) \times \frac{D}{E}\right) \times (1 + SZ) \\ &= 0.77 \times \left(1 + 0.81 \times \frac{0.4}{0.6}\right) \times 1.1 = 1.19 \times 1.1 = 1.31 \end{aligned}$$

For flexible strategy, where CA/CR is 0.6 the SZ risk premium is 0.01:

$$\begin{aligned} \beta_{lf}^* &= \beta_u \times \left(1 + (1 - T) \times \frac{D}{E}\right) \times (1 + SZ) \\ &= 0.77 \times \left(1 + 0.81 \times \frac{0.4}{0.6}\right) \times 1.01 = 1.19 \times 1.01 = 1.2 \end{aligned}$$

Using that information we can calculate the cost of equity rates for each liquidity investment strategy. For restrictive strategy:

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<sup>1</sup> According to Brigham (2000) even non-profit corporations that are exempt from taxation, and they have the right to issue tax-exempt debt but individual contributions to these non-profit organizations can be deducted from taxable income by the donor, so: "non-profit businesses have access to tax-advantaged contributed capital".

$$k_{e_r} = \beta_l \times (k_m - k_{RF}) + k_{RF} = 1.43 \times 14\% + 4\% = 24\%,$$

For moderate strategy:

$$k_{e_m} = \beta_l \times (k_m - k_{RF}) + k_{RF} = 1.31 \times 14\% + 4\% = 22.3\%,$$

And for flexible strategy:

$$k_{e_f} = \beta_l \times (k_m - k_{RF}) + k_{RF} = 1.2 \times 14\% + 4\% = 20.8\%$$

Where:  $k$  – rate of return expected by capital donors and at the same time (from the nonprofit organization perspective) – cost of financing capital rate,  $k_e$  – for cost rate of the equity,  $k_{dl}$  – for long term debt rate,  $k_{ds}$  – for short term debt rate,  $k_m$  – for average rate of return on typical investment on the market,  $k_{RF}$  – for risk free rate of return whose approximation is an average profitability of treasury bills in the country where the investment is made.

In a similar way, we can calculate the risk premiums for XYZ alternative rates. We know that long term debt rates differ by  $9\% \times (1+SZ)$  in relation of equity to long term debt. From that, we can get long term debt cost rates for each alternative strategy. For restrictive strategy:

$$k_{dl_r} = k_{e_r} - 9\% \times 1.2 = 24\% - 10.8\% = 13.2\%,$$

For moderate strategy:

$$k_{dl_m} = k_{e_m} - 9\% \times 1.1 = 22.3\% - 9.9\% = 12.4\%,$$

And for flexible strategy:

$$k_{dl_f} = k_{e_f} - 9\% \times 1.01 = 20.8\% - 9.1\% = 11.7\%$$

Next we can calculate the risk premiums for XYZ alternative cost of short term rates. We know that short term debt rates differ by  $12\% \times (1+SZ)$  in relation of cost of equity rates to short term debt rates. From that we can get short term debt cost rates for each alternative strategy. For restrictive strategy:

$$k_{ds_r} = k_{e_r} - 12\% \times 1.2 = 24\% - 14.4\% = 9.6\%,$$

For moderate strategy:

$$k_{ds_m} = k_{e_m} - 12\% \times 1.1 = 22.3\% - 13.2\% = 9.1\%,$$

And for flexible strategy:

$$k_{ds_f} = k_{e_f} - 12\% \times 1.01 = 20.8\% - 12.1\% = 8.7\%$$

As a result, the cost of money rate will amount to:

$$CC = \frac{E}{E + D_1 + D_2} \times k_e + \frac{D_1}{E + D_1 + D_2} \times k_{dl} \times (1 - T) + \frac{D_2}{E + D_1 + D_2} \times k_{ds} \times (1 - T)$$

However, for each strategy – this cost rate will be on another level (calculations in the Table 1. below).

**Table 1** Cost of money and changes in economic results depending on the choice of liquidity investment strategy (before the crisis influence).

Liquidity investment strategy	Restrictive	Moderate	Flexible
Cash Revenues ( <i>CR</i> )	2000	2080	2142,4
Fixed assets ( <i>FA</i> )	1400	1445	1480
Current assets ( <i>CA</i> )	600	936	1285
Total assets ( <i>TA</i> ) = Total liabilities ( <i>TL</i> )	2000	2381	2765
Accounts payable ( <i>AP</i> )	300	468	643
Capital invested ( <i>E+D<sub>l</sub>+D<sub>s</sub></i> )	1700	1913	2122
Equity ( <i>E</i> )	680	765	849
Long-term debt ( <i>D<sub>l</sub></i> )	340	383	424
Short-term debt ( <i>D<sub>s</sub></i> )	680	765	849
EBIT share in <i>CR</i>	0.5	0.45	0.40
Earnings before interests and taxes ( <i>EBIT</i> ) <sup>2</sup>	1000	936	857
Free Cash Flows in 1 to n periods ( <i>FCF<sub>1..n</sub></i> )	1000	936	857
Initial Free Cash Flows in year 0 ( <i>FCF<sub>0</sub></i> )	-1700	-1913	-2122
SZ risk premium correction	0.2	0.1	0.01
Leveraged and corrected risk coefficient $\beta_l$	1.428	1.309	1.2019
Cost of equity rate ( $k_e$ )	23.99%	22.33%	20.83%
Long-term debt rate ( $k_{dl}$ )	13.19%	12.43%	11.74%
Short-term debt rate ( $k_{ds}$ )	9.59%	9.13%	8.71%
Cost of money ( <i>CC</i> )	14.84%	13.90%	13.05%
Economic result of liquidity strategy	<b>5037.77</b>	4821.18	4443.17

Source: hypothetical data

As it is shown in the table, rates of the cost of money financing the non-profit organization are different for different approaches to liquidity investment. The lowest rate:  $CC = 13.1\%$ ; is observed in flexible strategy because that strategy is linked with the smallest level of risk but the highest economic effect is linked with restrictive strategy of investment in liquidity.

Cost of money for restrictive strategy of investment in liquidity:

$$CC_r = \frac{680}{1700} \times 24\% + \frac{340}{1700} \times 13.2\% \times (1 - 0.19) + \frac{680}{1700} \times 9.6\% \times (1 - 0.19) = 14.8\%$$

Expected growth of economic result of liquidity strategy:

$$\Delta ER_r = FCF_0 + \frac{FCF_{1..n}}{CC} = -1700 + \frac{1000}{0.148} = 5057$$

Cost of money for moderate strategy of investment in liquidity:

$$CC_m = \frac{765}{1913} \times 22.3\% + \frac{383}{1913} \times 12.4\% \times (1 - 0.19) + \frac{765}{1913} \times 9.1\% \times (1 - 0.19) = 13.9\%$$

<sup>2</sup> Because of exempt of taxation, EBIT is equal to net operating profit after taxes (NOPAT).

Expected growth of economic result for that strategy:

$$\Delta ER_m = -1913 + \frac{936}{0.139} = 4021$$

Cost of money for flexible strategy of investment in liquidity:

$$CC_f = \frac{849}{2122} \times 20.8\% + \frac{424}{2122} \times 11.7\% \times (1 - 0.19) + \frac{849}{2122} \times 8.7\% \times (1 - 0.19) = 13.1\%$$

Expected growth of economic result for flexible strategy:

$$\Delta ER_f = -2122 + \frac{857}{0.131} = 4420$$

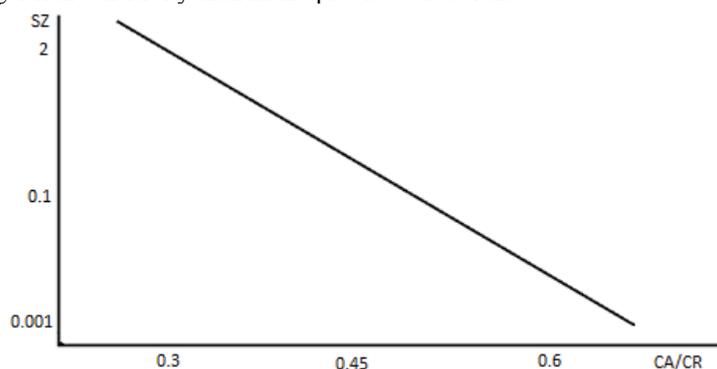
After crisis, the expected changes will correct both the market liquidity value and the cost of money rate. Both factors influence the target (and optimal) liquidity level for nonprofit organization. That will result with more restrictive liquidity levels because of change in equilibrium point for intrinsic and market liquidity values (Michalski 2010, p. 86-88, Golawska-Witkowska, Rzezyczka, Zalewski, 2006, p. 144, Jaworski, 2010, p. 366-368). The cost of money will be higher after the crisis than before (Fernandez, Aguirreamalloa, Corres 2011, p. 4-7, Fernandez, Campo, 2010, p. 4-7, Fernandez 2008, p. 5-8). That will result in the changes in efficiency of liquidity policy for nonprofit organizations (as shown in Table 2).

**Table 2** Cost of money and changes in economic results depending on the choice of liquidity investment strategy (after the crisis influence).

Liquidity investment strategy	Restrictive	Moderate	Flexible
Cash Revenues ( <i>CR</i> )	2000	2080	2142.4
Fixed assets ( <i>FA</i> )	1400	1445	1480
Current assets ( <i>CA</i> )	600	936	1285
Total assets ( <i>TA</i> ) = Total liabilities ( <i>TL</i> )	2000	2381	2765
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SZ risk premium correction	0.2	0.1	0.01
Leveraged and corrected risk coefficient $\beta_l$	1.428	1.309	1.2019
Cost of equity rate ( $k_e$ )	27.85%	25.94%	24.23%
Long-term debt rate ( $k_{dl}$ )	17.05%	16.04%	15.14%
Short-term debt rate ( $k_{ds}$ )	13.45%	12.74%	12.11%
Cost of money ( <i>CC</i> )	18.26%	17.10%	16.07%
Economic result of liquidity strategy	<b>3777</b>	3559.18	3211.06

Source: hypothetical data

As it is shown in table 2, the after crisis changes influence the efficiency of the liquidity investment of nonprofit organization. Of course that change depends on NPO risk sensitivity. Depending on their risk sensitivity, an additional risk premium for an NPO that implemented this type of strategy should be used. As presented in Fig. 2., we have stronger risk sensitivity than in the previous situation.



**Fig. 2** The shape of line of correction SZ as a function of CA/CR in the SZ2 variant.  
*Source: hypothetical data.*

In Table 3. There are calculations for that variant. For each strategy the cost of money rate  $CC$  will be on another level.

**Table 3** Cost of money and changes in economic results depending on the choice of liquidity investment strategy (before the crisis influence).

Liquidity investment strategy	Restrictive	Moderate	Flexible
Cash Revenues ( $CR$ )	2000	2080	2142,4
Fixed assets ( $FA$ )	1400	1445	1480
Current assets ( $CA$ )	600	936	1285
Total assets ( $TA$ ) = Total liabilities ( $TL$ )	2000	2381	2765
Accounts payable ( $AP$ )	300	468	643
Capital invested ( $E+D_l+D_s$ )	1700	1913	2122
Equity ( $E$ )	680	765	849
Long-term debt ( $D_l$ )	340	383	424
Short-term debt ( $D_s$ )	680	765	849
EBIT share in $CR$	0.5	0.45	0.40
Earnings before interests and taxes ( $EBIT$ )	1000	936	857
Free Cash Flows in 1 to n periods ( $FCF_{1..n}$ )	1000	936	857
Initial Free Cash Flows in year 0 ( $FCF_0$ )	-1700	-1913	-2122
SZ risk premium correction	2	0.1	0.001
Leveraged and corrected risk coefficient $\beta_l$	3.5574	1.30438	1.186986
Cost of equity rate ( $k_e$ )	53.80%	22.26%	20.62%
Long-term debt rate ( $k_{dl}$ )	26.80%	12.36%	11.61%
Short-term debt rate ( $k_{ds}$ )	17.80%	9.06%	8.61%
Cost of money ( $CC$ )	31.63%	13.84%	12.92%
Economic result of liquidity strategy	1461	<b>4849</b>	4513

*Source: hypothetical data*

In a similar way, we can calculate for situation with higher after crisis cost of money rates levels. The result is presented in Table 4.

**Table 4** Cost of money and changes in economic results depending on the choice of liquidity investment strategy (after the crisis influence).

Liquidity investment strategy	Restrictive	Moderate	Flexible
Cash Revenues ( <i>CR</i> )	2000	2080	2142,4
Fixed assets ( <i>FA</i> )	1400	1445	1480
Current assets ( <i>CA</i> )	600	936	1285
Total assets ( <i>TA</i> ) = Total liabilities ( <i>TL</i> )	2000	2381	2765
Accounts payable ( <i>AP</i> )	300	468	643
Capital invested ( $E+D_l+D_s$ )	1700	1913	2122
Equity ( <i>E</i> )	680	765	849
Long-term debt ( <i>D<sub>l</sub></i> )	340	383	424
Short-term debt ( <i>D<sub>s</sub></i> )	680	765	849
EBIT share in <i>CR</i>	0.5	0.45	0.40
Earnings before interests and taxes ( <i>EBIT</i> )	1000	936	857
Free Cash Flows in 1 to n periods ( $FCF_{1..n}$ )	1000	936	857
Initial Free Cash Flows in year 0 ( $FCF_0$ )	-1700	-1913	-2122
SZ risk premium correction	2	0.1	0.001
Leveraged and corrected risk coefficient $\beta_l$	3.5574	1.30438	1.186986
Cost of equity rate ( $k_e$ )	61.92%	25.87%	23.99%
Long-term debt rate ( $k_{dl}$ )	34.92%	15.97%	14.98%
Short-term debt rate ( $k_{ds}$ )	25.92%	12.67%	11.98%
Cost of money ( <i>CC</i> )	38.82%	17.04%	15.91%
Economic result of liquidity strategy	877	<b>3580</b>	3266

Source: hypothetical data

### CONCLUSIONS

Depending on the non-profit organization business type, sensibility to liquidity financing method risk might vary a lot. The character of the non-profit organization mission also determines the best strategy that should be chosen. The best choice is that with the adequate cost of financing and highest economic result of liquidity strategy. This depends on the structure of financing costs. The lower the financing cost, the higher the effectiveness of the non-profit organization activity measured by the economic result of liquidity strategy. The organization choosing between various solutions in liquidity needs to decide what level of risk is acceptable for her owners and capital suppliers. It was shown in solutions presented in that paper. If the risk exposition is higher, a safer solution will be preferred. That choice results with cost of financing consequences. In this paper, we considered that relation between risk and expected benefits from the liquidity decision and its results on financing costs for the nonprofit organization and economic result of liquidity strategy.

Although, cash maintained in the non-profit organization is not a source of any interests and although the close to cash assesses together with credit lines available for non-profit organization are connected with resigning from realization of the part of incomes or costs,

non-profit organizations could decide to maintain some liquidity reserves. And this does not only result from transactional needs, but also from precautional and speculative reasons. Precautional liquidity results from a will to protect oneself against higher costs connected with impossible to predict negative economic events. It should be assessed from safeguard's point of view. However, investment in liquid reserves resulting from speculative demand for money may be assessed by using a call option approach. In his paper, each of the above-mentioned aspects of liquidity was taken into consideration and presented. Pondering on option liquidity value, six factors were pointed out which influence it the most. Further analysis of the liquidity value problem would aim at finding the credible methods of its determination. The non-profit organization liquidity value determination may often significantly contribute to the solution of working capital management problems.

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## **UTICAJ KRIZE NA CENU NOVCA I VREDNOST UNUTRAŠNJE LIKVIDNOSTI U NEPROFITNIM ORGANIZACIJAMA**

**Grzegorz Michalski**

*Novac koji se zadržava u neprofitnim organizacijama nije izvor prihoda po osnovu kamate i iako su potraživanja zajedno sa kreditnim linijama koje su dostupne preduzećima povezana sa uzdržavanjem od realizacije dela prihoda ili troškova, firme odlučuju da zadrže neke rezerve likvidnosti. Ovo ne proizilazi samo iz potreba transakcija, već i iz razloga predostrožnosti i spekulacija. Investiranje u likvidne rezerve kao rezultat spekulativne potražnje za novcem može se proceniti upotrebom metoda kapitalnog budžetiranja kao što su: neto trenutna vrednost (NPV) ili interna stopa prinosa (IRR) ili kao kol opcija. U ovom članku, razmatran je svaki od ovih aspekata likvidnosti i predstavljen iz ugla neprofitnih organizacija. Određivanje vrednosti likvidnosti neprofitne organizacije često može značajno da doprinese rešavanju problema upravljanja obrtnim kapitalom u ovim organizacijama.*

*Ključne reči: vrednost unutrašnje likvidnosti, neprofitno upravljanje finansijama, finansijska likvidnost.*