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LIQUIDITY MANAGEMENT MODEL IN NON-PROFIT ORGANIZATIONS IN RELATION TO RISK: THE CASE OF POLISH NON-PROFIT ORGANIZATIONS[1]

Abstract: The kind of realized mission influences the sensitivity to risk. Among other factors, that risk results from the decision about liquid assets investment level and liquid assets financing. The higher the exposure to risk, the higher the level of liquid assets should be. If the exposure to that risk is smaller, the more aggressive could be the net liquid assets strategy. The organization choosing between various solutions in liquid assets needs to decide what level of risk is acceptable for its owners (or donors) and/or capital suppliers. The paper shows how, in the authors' opinion, decisions about liquid assets management strategy influence the risk of the organizations and its economical results during the realization of its main mission. Comparing the theoretical model with empirical data for over 3300 Polish non-profit organization results illustrate the way the liquidity management model works for non-profit organizations.

Keywords: intrinsic liquidity value, non-profit financial management, financial liquidity.
JEL Classification: G31, L31, M21.

1. Introduction

The main scientific aim of the paper is a discussion concerning a liquidity management model in a non-profit organization. This paper is a continuation of our research of this topic [Michalski, Mercik 2011; Michalski 2011a, b]. In the paper to verify our findings we use wider data from the whole Polish population of non--profit organizations published by public benefit organizations. In the paper we study non-profit organization liquid assets management. This is a group of organizations doing almost the same job as non-taxed government controlled organizations, non-taxed non-profit organizations and taxed commercially managed businesses [Berger 2008, pp. 46, 47]. This group of organizations faces speci-

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fic incumbent needs which are the result of higher unemployment and other similar factors [Zietlow 2010, pp. 238–248].

The main financial aim of the non-profit organization (NPO) is not the maximization of a firm's value but the best realization of the mission of that organization [Zietlow, Hankin, Seidner 2007, pp. 6, 7]. But for an assessment of NPO's financial decision, there should be used analogous rules like for for-profit firms [Brigham 2006]. One of these rules is the fact that the higher risk is linked with the higher cost of capital rate which should be used to evaluate the future results of decisions made by non-profit organizations. This is also positively linked with the level of efficiency and effectiveness in the realization of the NPO's mission. The cost of financing net liquid assets depends on the risk included to the organization strategy of financing and/or investment in liquid assets.

Managing teams in non-profit organizations have a lot of important reasons for which their enterprises should possess some money resources reserves, even if the current interest rate is positive [Kim, Mauer, Sherman 1998]. The reasons may be classified into three main groups: the necessity of current expenses financing (transactional reason), fear of future cash flows uncertainty (precautional reason), future interest rate level uncertainty (speculative reason).

Liquid assets, especially cash, understood as money resources in an organization's safe, are not a source of any or small interest. Maintaining liquidity reserve in the non-profit organization is a result of a belief that the value of lost income on account of interest will be recompensed by the benefits for the incumbents of the non-profit organization [Kim, Mauer, Sherman 1998; Lee, Finnerty 1990). The hypothetical benefits are from the higher profitability that the organization's mission will be completed thanks to an adequate liquidity level. Then the organizations maintaining such reserves assume that in equilibrium conditions, marginal liquidity value is equal to the interest rate of the Treasury Bonds investments (or the interest rate being a cost of short-term credit we took out to obtain liquidity. Without doubt, the statement that investment in liquid assets does not bring any benefits helps in the realization of the NPO's mission may be rejected. From such a perspective, liquid assets would be treated as a "necessary evil" linked only to the costs resulting from the interests lost. Another incorrect conclusion would be the assumption that present net value always equals zero. This would be a result of the statement that due to the fact that marginal liquidity value is always equal to the interests lost, the cash reserves size has no significance at all [Henderson, Maness 1989; p. 95; Kim, Mauer, Sherman 1998; Lee, Finnerty 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 assets in the non-profit organization may be increased at a profit [Michalski 2008b, 2011b; Washam, Davis 1998, p. 28; Henderson, Maness 1989; Lee, Finnerty 1990]. The term liquidity degree (or level) is connected with the concept known from economic literature of "liquidity container". The more liquid assets (which may be easily convertible into known amount of money resources and sensitive only to a slight value change risk), the higher the enterprise's liquidity level.

After crossing this critical liquid assets level, the Treasury Bonds sale or taking out a short-term debt is unprofitable for the non-profit organization. The marginal benefit from a higher cash reserve is lower than the cost of the interest lost [Washam, Davis 1998; Henderson, Maness 1989].

The non-profit organization transactional and precautional liquid assets holdings at a sufficient level enable the prompt fulfillment of internal (salary payments etc.) and external creditors (suppliers payment etc.). The non-profit organization's 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 threatens [Scherr 1989; Washam, Davis 1998; Beck 1993]: lowering decision making elasticity, deteriorating non-profit organization's ability to set the organization's mission, higher foreign capital raising cost, demobilization of donors, worsening non-profit organization position. 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.

2. Liquidity strategies, risk and cost of financing

Liquid assets strategy influences the rate of cost of capital financing non-profit organization and that influences the economic results of the NPO depending on the relation between the kind of business risk taken by the NPO, the financial risk results from the financial leverage and individual risk characterizing the NPO. Capital providers take into consideration the non-profit organization's liquidity investment strategy while defining their claims as regards the rates of return. Since a restrictive strategy is perceived as more risky and therefore depending on investors risk aversion level, they tend to ascribe to the financed non-profit organization applying to the restrictive strategy an additional expected risk premium. Ascribing the additional risk premium for applied liquidity investment strategy is reflected in the value of β risk coefficient. For each strategy, the β risk coefficient will be corrected by the corrective coefficient SZ corresponding to that specific strategy in relation to the current assets to cash revenues (CA/CR) relation.

Case study. The aim of that case study is to illustrate relations between liquidity management decisions in NPO and the economic results of them (that case study is a shorter version of case study presented in [Michalski, Mercik 2011;

Restrictive		Flexible
↘	**CR**	↗
↘	**CE**	↗
↗↘	**FCF**	↗↘
↗	*β*	↘
↗	**CC**	↘
↗↘,↗	NPO performance	↗↘,↘

Figure 1. Model influence of the current assets investing strategy choice on the key performance indicators in non-profit organization

Source: own proposal.

Michalski 2011a]. The risk free rate is 4%, and the rate of return on the market portfolio is 18%. If XYZ non-profit organization is a representative of the W sector for which the non-leveraged risk coefficient $\beta_u = 0.77$. On the basis of Hamada relation [Hamada 1972], we can estimate the equity cost rate that is financing that organization in the 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, here the assumption is taken that the NPO uses the tax-exempt debt and as a result it has about the same effective cost of debt as for profit organizations [Brigham 2006, ch. 30, pp. 5, 7, 20],[2] 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, β – risk coefficient, β_u – risk coefficient for assets of the non-profit organization that does not use debt, β_l – risk coefficient for an organization that is applying a 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:

$$\beta^*_{l\,r} = \beta_u \times \left(1 + (1 - T) \times \frac{D}{E}\right) \times (1 + SZ) = 0.77 \times \left(1 + 0.81 \times \frac{0.4}{0.6}\right) \times 1.2 =$$
$$= 1.19 \times 1.2 = 1.43,$$

where: *SZ* – risk premium correction dependent on the liquidity investment strategy.

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[2] According to Brigham [2006] even non-profit corporations that are exempt from taxation, and 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".

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

$$\beta^*_{l\,m} = \beta_u \times \left(1 + (1 - T) \times \frac{D}{E}\right) \times (1 + SZ) = 0.77 \times$$
$$\times \left(1 + 0.81 \times \tfrac{0.4}{0.6}\right) \times 1.1 = 1.19 \times 1.1 = 1.31.$$

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

$$\beta^*_{l\,f} = \beta_u \times \left(1 + (1 - T) \times \frac{D}{E}\right) \times (1 + SZ) =$$
$$= 0.77 \times \left(1 + 0.81 \times \tfrac{0.4}{0.6}\right) \times 1.01 = 1.19 \times 1.01 = 1.2.$$

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

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

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 a non-profit organization's perspective) – cost of financing capital rate, k_e – for cost rate of the equity, 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 for $9\% \times (1 + SZ)$ 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 to 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, cost of capital rate will amount to:

$$CC = \frac{E}{E+D_l+D_s} \times k_e + \frac{D_l}{E+D_l+D_s} \times k_{dl} \times (1-T) + \frac{D_s}{E+D_l+D_s} \times k_{ds} \times (1-T).$$

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

Table 1. Cost of capital and changes in economic results depending on the choice of liquidity investment strategy in the case of least resistant to risk non-profit organization (SZ1 variant)

Liquidity investment strategy	Restrictive	Δ	Moderate	Δ	Flexible
Cash Revenues (*CR*)	2000	↗	2080	↗	2142
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	0.2	↘	0.1	↘	0.01
Leveraged and corrected risk coefficient β_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 capital (*CC*)	14.84%	↘	13.90%	↘	13.05%
Economic result of liquidity strategy	**5037.77**	↘	4821.18	↘	4443.17

[*] Because of exempt of taxation, EBIT is equal to net operating profit after taxes (NOPAT).

Source: hypothetical data.

As is shown in the table, the rates of the cost of capital 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.
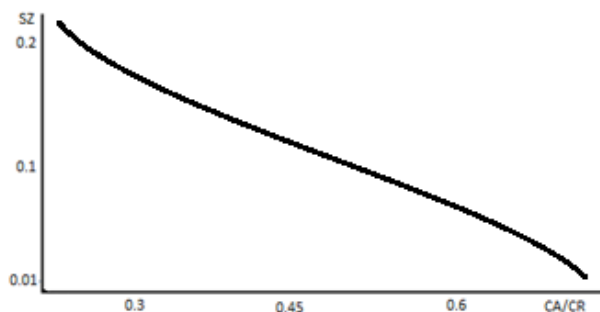

Figure 2. The hypothetical shape of line of correction *SZ* as a function of *CA/CR* in the SZ1 variant

Source: hypothetical data.

Cost of capital 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:

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

Cost of capital for moderate strategy of investment in liquidity:

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

Expected growth of economic result for that strategy:

$$\Delta ER_m = -1913 + \frac{936}{0.139} = 4821.$$

Cost of capital 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:

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

The change in efficiency 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 Figure 2, we have stronger risk sensitivity than in the previous situation.
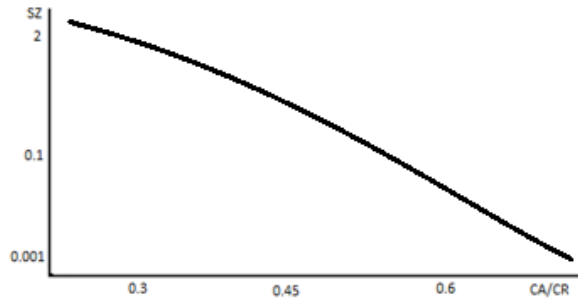

Figure 3. The hypothetical shape of line of correction *SZ* as a function of *CA*/*CR* in the SZ2 variant

Source: hypothetical data.

Table 2. Cost of capital and changes in economic results depending on the choice of liquidity investment strategy in the case of more resistant to risk non-profit organization (SZ2 variant)

Liquidity investment strategy	Restrictive	Δ	Moderate	Δ	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 β_l	3.56	↘	1.3	↘	1.19
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 capital (*CC*)	31.63%	↘	13.84%	↘	12.92%
Economic result of liquidity strategy					
	1461	↗	**4849**	↘	4513

Source: hypothetical data.

In Table 2 there are calculations for that variant. For each strategy the cost of capital rate *CC* will be on another level.

3. Empirical data for Polish non-profit organizations

Data collected about Polish non-profit organizations (NPO) show their liquidity strategies for 2009 and 2010. If we compare it with for profit Polish organizations results, we can see that the average length of operating cycle and net operating cycle (cash cycle) is shorter than the average for profit organizations. Observation of NPO data can inform us about interesting customs of NPO managing teams. Generally, based on data collected from Poland for 2009 and 2010, we can see that the average operating cycle for such a group of organizations differ. The operating cycle policy must be first of all a slave to the best realization of the mission of the non-profit organization. The economic results are important, but second or even third in the line of the aims.

Table 3. Liquid assets indicators for Polish non-profit organizations in 2009 and 2010

Item	*CR*	Assets	*CA*	Current Ratio	Quick Ratio	Cash Ratio	INV
Number of observations	2 283	2 292	2 294	1 473	1 471	1 467	2 291
Mean	483 699	834 187	201 034	1 092	526	474	6 284
SD	1 636 492	13 073 895	1 315 942	23 069	5 201	4 998	46 105
Median	76 979	24 732	19 062	5.6	5.42	4.54	–
Winsorized mean	693 825	352 948	172 751	63	62	56.3	–
Truncated (trimmed) mean	141 493	58 492	34 793	12	12	10.21	–

Item	*AR*	Cash equivalents	*E*	D_l	D_s	ROA	ROE
Number of observations	2 290	2 292	2 294	2 293	2 293	2 266	2 247
Mean	32 043	172 066	688 121	11 026	47 152	– 0.57	– 0.04
SD	605 949	1 291 873	12 967 335	112 797	312 128	23	23
Median	–	13 902	17 037	–	607	0	0.30
Winsorized mean	11 318	116 842	207 907	–	35 605	1	1
Truncated (trimmed) mean	2 282	25 330	37 026	–	6 822	0	0.31

SD = standard deviation, *AR* = accounts receivable, *E* = fund capital, D_l = long-term debt, D_s = short-term debt, INV = inventories.

Source: calculation for over 1000 selected non-profits in Poland [BOPP 2011].

According to data received from over 1000 Polish NPOs, the average NPO investment in liquid assets is more aggressive than it should be in non-profit organizations. NPOs should care about the safe as possible realization of the mission, so a less risky and more flexible solution should be better for them. The average Polish NPO accounts receivable period for 2009–2010 data is about 23 days (5.8 days using winsorized mean and 5.8 days using truncated mean). The average Polish NPO inventory period for 2009–2010 data is about 4.7 days. That observation can suggest to us that in Polish NPOs case we have a situation with an aggressive liquidity policy among the non-profit managing teams.

4. Polish liquidity strategy non-profit empirical data

Wanting to answer the observation which could suggest the average aggressive policy of non-profit managing teams, we cut part of the non-profit firms from our analyzed data. We used only such Polish non-profits which had current liabilities, cash, inventories valued at more than 100 PLN. Distribution analysis commands understanding the financial management process in NPO. Probability distribution function and statistical dispersion of financial data could provide valuable information about the current financial condition in not-for-profit businesses.
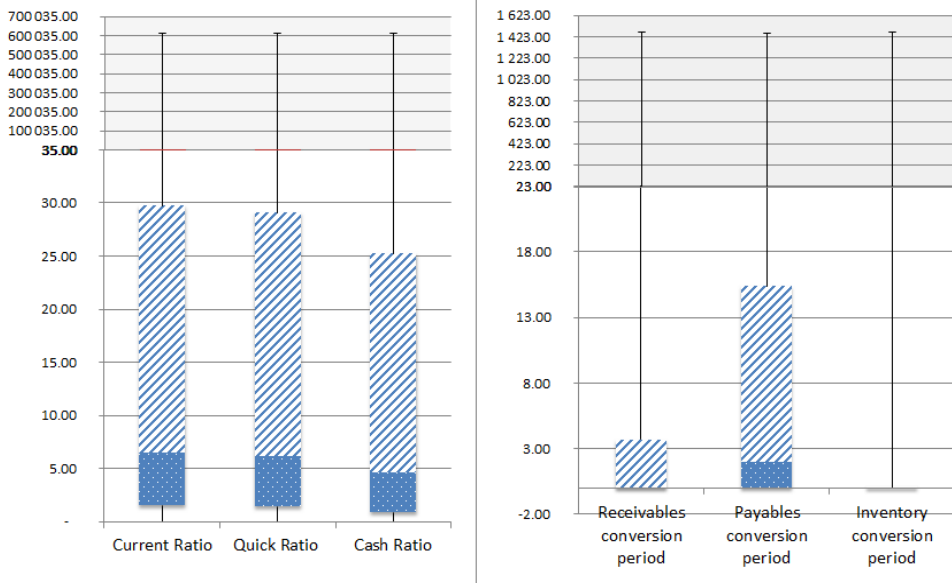

Figure 4. Boxplots – liquid ratios and conversion periods (2009)

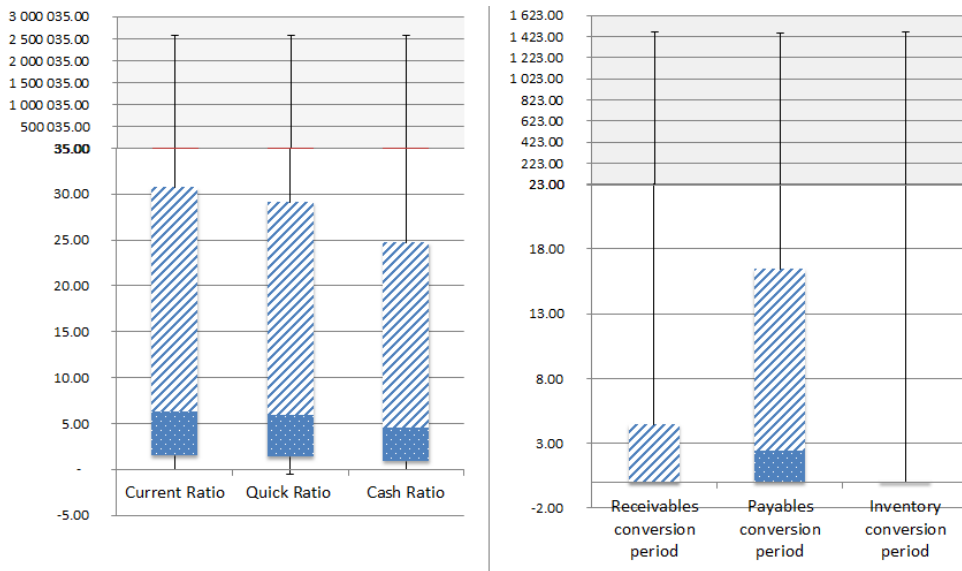Source: own calculation for over 3300 non-profits [BOPP 2011].

Figure 5. Boxplots – liquid ratios and conversion periods (2010)

Source: own calculation for over 3300 selected non-profits [BOPP 2011].

Figure 6. Boxplots – liquid ratios and conversion periods (2009)

Source: own calculation for 260 selected non-profits (which had current liabilities, cash, inventories valued at more than 100 PLN) [BOPP 2011].
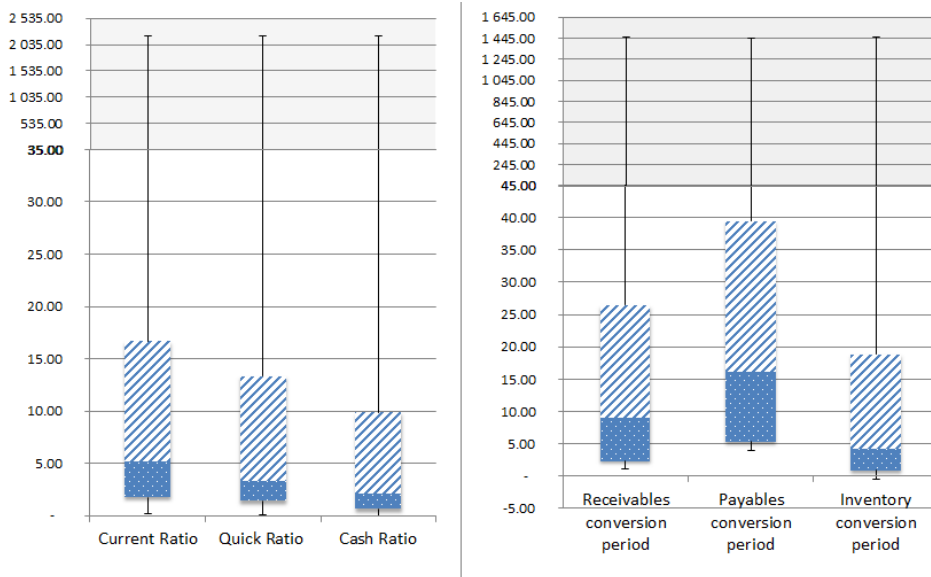
Figure 7. Boxplots – liquid ratios and conversion periods (2010)

Source: own calculation for 260 selected non-profits (which had current liabilities, cash, inventories valued at more than 100 PLN) [BOPP 2011].
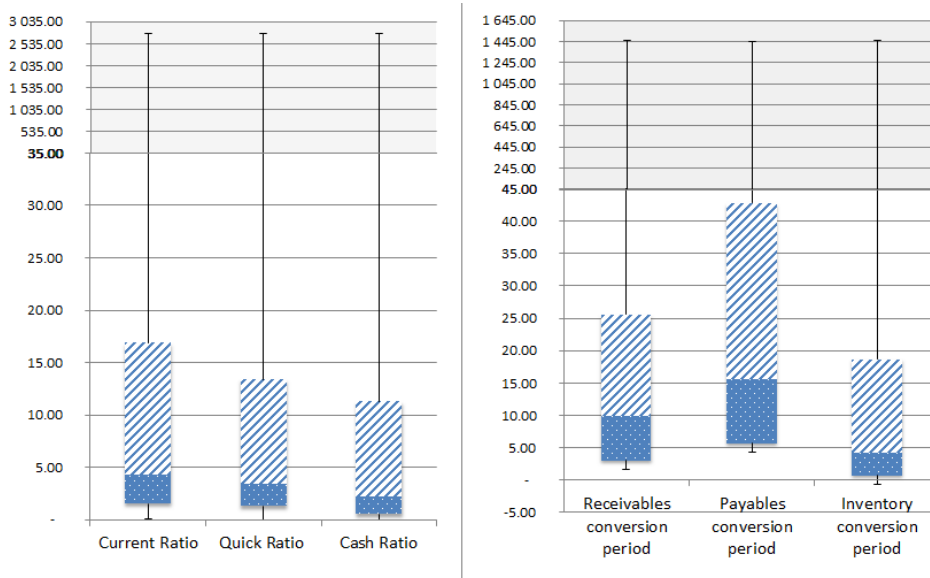
An important aspect is the shape of a distribution, which shows the frequency of values from different ranges of the variable. We analyzed non-profit organizations from 16 Polish voivodeships. We present the results for all the organizations and for the 290 selected organizations which had current liabilities, cash, inventories valued at more than 100 PLN. The analysis of all financial ratios produced some interesting results. Skewness (a measure of the asymmetry of the probability distribution) is clearly different from 0, which means that distribution is asymmetrical. The boxplots testify that all analyzed data are not normally distributed. In particular a boxplot is a convenient way of graphically depicting groups of numerical data through their summaries: minimum, lower quartile (Q1), median, upper quartile (Q3), maximum. The location of the box within the whiskers provides an insight into the asymmetry of the sample's distribution. The samples are extremely positively skewed. A thinner box relative to the whiskers indicates a thinner peak.

The right side tail of the probability density function is much longer than the left side. The mean (and standard deviation) can be heavily influenced by extreme values in the tails of a variable. In this case a truncated mean and a Winsorized mean are more useful estimators. Compared to the mean, they are less sensitive to outliers than the mean [Heilpern 1999] but it still gives a reasonable estimate of central tendency. Truncated mean rejects some parts of the data from the top or

from the bottom end, (typically an equal amount at each end) and then calculate the arithmetic mean of the remaining data [Rothenberg, Fisher, Tilanus 1966]. On the other hand, a Winsorized mean involves the calculation of the mean after replacing given parts of a probability distribution or sample at the high and low end with the most extreme remaining values [Wilcox, Keselman 2003].

Table 4a. Liquid assets indicators for Polish non-profit organizations in 2009 and 2010

Indicators	Receivables conversion period	Payables conversion period	Inventory conversion period	Current Ratio	Quick Ratio	Cash Ratio
2009						
Size of population	3313.00	3313.00	3313.00	2158	2158	2158
Arithmetic mean	226.92	5655.52	888.52	647.51	645.07	594.93
Standard deviation	7267.28	286218.70	36457.01	13720.67	13717.56	13630.64
Median	0.00	2.00	0.00	6.41	6.07	4.56
Winsorized mean	3.05	8.72	–	13.40	12.79	10.64
Truncated mean	10.93	33.67	0.00	70.86	68.03	58.83
Skewness	43.49	57.23	42.45	41.48	41.51	42.25
Maximum	1460.00	1460.00	1460.00	612445.00	612445.00	612445.00
Minimum	−15.92	−953.90	0.00	0.00	0.00	0.00
2010						
Size of population	3335	3335	3335	2220	2220	2222
Average	161.67	13286.66	308.03	2210.02	1829.18	1566.03
Standard deviation	7086.66	520108.68	17415.49	59087.86	56188.47	49815.04
Median	0.00	2.45	0.00	6.20	5.85	4.45
Truncated mean	3.48	8.72	–	13.86	13.24	10.92
Winsorized mean	12.37	33.37	0.00	77.10	73.48	61.95
Skewness	57.34	42.78	57.75	38.81	43.53	43.45
Maximum	1460.00	1460.00	1460.00	2566925.40	2566925.40	2566925.40
Minimum	0.00	−217.60	0.00	0.00	−0.49	0.00

Source: own calculations for over 3300 (2200) selected non-profits [BOPP 2011].

Table 4b. Liquid assets indicators for Polish non-profit organizations in 2009 and 2010

Indicators	Receivables conversion period	Payables conversion period	Inventory conversion period	Current Ratio	Quick Ratio	Cash Ratio
2009						
Size of population	296	296	296	296	296	296
Arithmetic mean	640.69	2545.45	5836.72	36.25	30.18	26.49
Standard deviation	10563.58	36850.19	99818.92	151.10	143.41	139.97
Median	9.06	16.19	4.35	5.12	3.28	2.00
Winsorized mean	12.50	20.95	8.55	8.08	5.89	4.25
Truncated mean	48.35	74.75	43.18	36.68	26.33	21.55
Skewness	17.20	16.49	17.20	10.93	12.43	13.25
Maximum	1460.00	1460.00	1460.00	2208.98	2208.98	2208.98
Minimum	0.03	0.07	0.01	0.13	0.06	0.00
2010						
Size of population	290	290	290	290	290	290
Average	36.82	265.06	34.97	60.51	48.92	30.92
Standard deviation	135.95	2939.49	109.35	254.39	228.61	129.13
Median	10.01	15.65	4.27	4.27	3.31	2.10
Truncated mean	12.97	21.47	8.75	8.32	6.25	4.75
Winsorized mean	46.50	72.07	49.81	42.92	31.01	24.79
Skewness	9.28	16.10	6.99	7.07	8.27	6.83
Maximum	1460.00	1460.00	1460.00	2754.99	2754.99	2754.99
Minimum	0.03	0.01	0.00	0.07	0.00	0.00

Source: own calculations for selected non-profits which had current liabilities, cash, inventories
        valued at more than 100 PLN [BOPP 2011].

5. Conclusions

As was shown in our findings, depending on the kind of realized mission, sensitivity to risk, NPOs should chose liquid assets investment level and resulting from that liquid assets financing. The kind of organization influences the best strategy choice. If an exposure to risk is greater, the higher level of inventories, accounts receivable and operating cash should also be [Michalski 2008a, 2011a]. If the exposure to that risk is smaller, the more aggressive will be the net liquid assets strategy and smaller level of inventories. The organization choosing between

various solutions in liquid assets needs to decide what level of risk is acceptable for its owners and capital suppliers. That choice results in financing consequences, especially at the cost level. This is the basis for considerations about relations between risk and expected benefits from the liquid assets decision and its results on financing costs for both non-profit or for profit organizations. Decisions about liquid assets management strategy and the choice between the kind of taxed or non-taxed form influence the risk of the organizations and its economic results during the realization of the main mission. Comparing the theoretical model with empirical data for over 3300 Polish non-profit organization results, suggests that non-profit organization managing teams do not choose higher risk aggressive liquid assets solutions but rather the more flexible solutions. That observation illustrates that here, in the case of Polish NPOs we can see the typical for non-profit organization risk exposure with a managing team concerned with safe realization of the mission: the main aim of the non-profit organization.

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RYZYKO I MODEL ZARZĄDZANIA PŁYNNOŚCIĄ W POLSKICH ORGANIZACJACH NON-PROFIT

Streszczenie: Rodzaj realizowanej przez organizację non-profit misji wpływa na wrażliwość organizacji na ryzyko. Spośród innych czynników, ryzyko jest także rezultatem poziomu inwestycji w płynne aktywa oraz konieczności ich finansowania. Większej ekspozycji na ryzyko powinna towarzyszyć większa suma środków zamrożonych w płynnych aktywach i odwrotnie. Organizacja, wybierając między różnymi poziomami zaangażowania środków w płynnych aktywach, powinna się kierować interesem swoich właścicieli (lub donatorów) oraz dostawców kapitału finansującego realizację misji. Artykuł prezentuje, w jaki sposób w opinii autorów decyzje w zakresie strategii zarządzania płynnymi aktywami mogą wpływać na ryzyko organizacji non-profit i jej ekonomicznych rezultatów w czasie realizacji głównej misji. Porównanie wskazówek płynących z teoretycznego modelu z empirycznymi danymi pochodzącymi z ponad 3300 działających w Polsce organizacji non-profit pozwoliło zilustrować zasady wynikające z modelu zarządzania płynnością w organizacjach non-profit w relacji do ryzyka.

Słowa kluczowe: wartość płynności, zarządzanie finansami NPO, płynność finansowa.