Liquidity and Short Term Asset-Liability Structure: Evidence from a Panel of Hungarian Firms

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Financial crisis has made a hard effect on the solvency and liquidity position of companies. The increasing number of bankruptcy signals that less liquid companies come easily to unsafe situation. We analyze the features of short-term liquidity conditions of the Hungarian manufacturing companies. The liquidity condition is interpreted broadly, connecting with the asset-liability structure. We investigate whether the structure of short-term assets is determined by particularity of sectors of industry and liabilities by general financial conditions. The features of asset-side analysis are confronted by the liability-side, and we make conclusion on trends of liquidity position of Hungarian manufacturing sectors. We use AMADEUS company level database. The balance sheet and income statement data from 2004 to 2007 provide information for panel data analysis.

Keywords: *Company liquidity, working capital, financial constraints*

1. Introduction, theoretical background

In corporate finance the focus is traditionally on long term financial decisions. The financial analysis of investment decisions and the financing of investments are in the focus of inquires.

In every project decisions we analyze the contribution to corporate values. Investment decisions define corporate value creation in the long term and reversing their impact claims significant cost and time. Meanwhile we cannot leave out of consideration, that in the balance sheet of companies the level of current assets has a relevant measure. The level of current assets is shaped partly by the impact of corporate operational/sectoral peculiarities and partly because of project decisions made by the management. In the case of firms operating in the manufacturing sector the ratio of current assets is more than 50% of the total assets. Contrary to the invested assets the effects of decisions which influence the current assets can be reversible in the short-term and on lower costs. Nevertheless, the weight of current assets in the

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balance sheet and the frequency of decisions concerning current assets make is reasonable to give more attention to this issue.

In literature of corporate finance, several pieces of empirical research confirm the importance of working capital. According to Gentry et al. (1979) there is a contradiction between that managers spend a significant part of their time with managing working capital and the fact that the literature of corporate finance handles it almost as a peripheral question and there is limited research in this field. The most common explanation of not giving significance to this question is that working capital management is often a daily routine for companies, their impact is not irreversible. Another explanation is that the right level of working capital and restructuring is principally a question of production, prices and market forecast, that is not especially financial field. Surveys carried out in four countries conclude that there is found out that the most active function of working capital management is the support of revenues from cash side by the active management of, inventories, account receivables and account payables. Its secondary role is the assurance of financing buffer to unanticipated financial situations. Its tertiary role is to minimize the elements of working capital and decrease costs.

Howorth et al. (2003) examined working capital routines in the UK in the scope of small companies and found that small companies cannot be considered homogeneous at all regarding working capital management. Based on their research they found that those companies gave little attention to working capital the profitability of which was high and which were not growth oriented, used less external finance, had shorter production cycles and had fewer cash flow problems.

Working capital management plays an important role in the shaping of corporate profitability and liquidity risk. The level of working capital can be held in a relatively high level, but this is problematic because of the alternative cost of capital, decreases profitability but in the same time it mitigates the risk related to production and consumer relations. The relation of risk and reward is different in the case of short term liabilities. In normal economic situations when short term interest rates are smaller than the long term ones, the high level of short term liabilities has a positive impact on corporate profitability, at the same time it raises the level of liquidity risk. Deloof (2003), Lazaridis et al. (2005) proved based on empirical data that there is a significant connection between the size of working capital, its inner components and corporate profitability.

Working capital is an important input factor and an easily variable tool of providing liquidity (Fazzari et al. 1993). Net working capital which is the difference between current assets and short term liabilities shows the net position of the company in respect of liquid assets. Among current assets inventories serve the company's production directly, while the accounts receivables help the realization of revenues. Among short term liabilities the accounts payable are not just the input of production, but an important tool of managing liquidity. The change of working capital, the variation of its inner components the sectoral determination/operational

specialties and beside the impacts coming from the risk-reward positioning of companies it is strongly determined by the 'behavior' of the company's management.

The management and the owners of the company, its partners do not possess the same information about the inner processes of the company, which causes additional costs (adverse selection costs) to the external partners of the firm. The agency theory, the corporate governance is a relevant issue not only regarding the whole company but concerning working capital management as well. Asymmetric information affects inventories, accounts receivable, accounts payable and the size of credit extension. According to Jensen (1986) the company's management is interested in holding relatively high cash pile and working capital. Higher level of working capital increases the management's flexibility in making decisions, it means higher collateral for credit extension and decreases the chance and cost of possible financial difficulties. It makes the performance and effort of management weaker in continuously maintaining liquidity in a way that is not negligible. In case of larger companies because of greater information asymmetry greater amount of cash and through this a bigger pile of working capital can be observed (Ozkan et al. 2004, Dyck et al. 2004).

From the elements of working capital cash holding attracts great attention, because in this case the questions of agency theory and corporate governance appear in a concentrated way. (Guney et al. 2007, Ozkan et al. 2004, Drobetz et al. 2007).

From the above mentioned surveys we can conclude that one of the main stream of the studies related to working capital management trends towards those parameters (profit, risk, liquidity) which are in the centre of decisions of corporate finance and which parameters can direct decisions. The other part of the surveys is based on the testing of parameters which form the level of working capital.

Earlier studies revealed many company-specific factors in connection with working capital management. In most cases we have to take it as a general feature that working capital management depends on the size of the company, the asset intensity of its activity, the possibilities of company growth, the leverage and the volatility of the cash flow (Guney et al. 2007, Delannay et al. 2004, Ozkan et al. 2004). Cash holding decreases the probability of financial distresses and through this the probable costs of financial difficulties. Cash holding shows the attendance of agency problem as well, the greater amount of cash pile can refer to the management's freedom of decision making. The management can be interested in keeping larger cash pile which can help the management to achieve their goals. Relatively few studies deal with the specialties of working capital management in developing countries. The study of Delannay et al. (2004) deals with nine Central and Eastern European countries, he examined some elements of working capital (accounts receivable, accounts payable) and he found that there is a relatively big difference among certain countries, which can be explained by the differences of their level of development, but he couldn't find unambiguous effects that can be generalized.

In the operation of companies the long-term and short-term asset groups need different handling, managing. In the centre of our research there is the short-term asset-liability management. On the one hand we need both the analysis of assets and liabilities, to explore those factors, which affects the level and inner components of working capital and current liabilities. On the other hand with the connection of assets and liabilities, and with the examination of working capital, we can find explanation for the other relations of the company's operation and thus the set of short-term liquidity.

The aim of the study is to find out the connection in reference to the level of current assets and short-term liabilities and their inner structure based the of balance sheet and profit and loss statement of the Hungarian companies in manufacturing sector. The other goal of the study is to make establishments to the liquidity status of companies, and to those factors that shape liquidity by jointly handling current assets and short term liabilities. We examine the specialties of working capital management in reference to two company groups, large-and medium sized companies. Our goal is to find out if there is any difference in the level of working capital and its components among Hungarian companies in the manufacturing sector.

2. Data, variables

We obtained data form the AMADEUS database[3]. The sample comprises medium and large-sized firms from Hungarian manufacturing sector. Companies on AMADEUS for Central European countries (for Hungary) are considered to be large when they have operating revenue greater than 10 million euros, or total assets greater than 20 million euros, or employees greater than 150. The medium sized firms meeting at least one of the following criteria: operating revenue greater than 1 million euros, or total assets greater than 2 million euros, or number of employees greater than 15[4].

In addition we applied series of filters. We eliminated the observations of firms with anomalies in their account, such as negative values in the current assets, fix assets, current liabilities, and tested the outliers.

In the first round, in the course of choosing variables we constituted three groups of variables. The first group shows the level of current assets and their inner

[3] The AMADEUS database was created and distributed by Bureau van Dijk, and contains company level financial and economic data, information on European companies.

[4] The selection criteria is different for UK, Germany, France, Italy, Spain, Ukraine and Russian Federation. Companies that are located in these countries are considered to be large when they have operating revenue greater 15 million euros, total assets greater than 30 million euros, employees greater than 200, considered medium sized when they have operating revenue greater 1,5 million euros, total assets greater than 3 million euros, employees greater than 20.

components, the second group shows the level of debts and their inner components, the third group shows the connection between the assets and liabilities and the size of liquidity.

Current asset's ratios:

CA_TA	Current assets to total assets
Stock	Stocks (inventory) to total assets
Debtor	Account payable to total assets
Cash	Cash and cash equivalent to total assets

Debt ratios:

CL_TF	Current liabilities to total financing (total assets)
TL_TF	Current liabilities and long term debt to total financing
Loan	Short term debt to total financing
Creditor	Account payable to total financing

Liquidity ratios:

NCA_TA	(current assets – current liabilities) / total assets
CA_CL	Liquidity ratio (current assets / current liabilities)
ACID	Quick ratio (current assets – stock) / current liabilities

In the second round of choosing variables we aimed at taking that kind of variables which expectedly affect the size of working capital and the set of liquidity. These variables can be seen among the independent variables of linear regression. However we cannot leave out of consideration that the factors of the asset and liability side can be independent variables of each other. The size of current assets can be influenced by whether reduced rate credits or patient suppliers are available, and conversely the size of credit pile is influenced by the size of current assets.

Operating ratios:

OPC	Operating cycle. Number of days account receivable + inventory
CCC	Cash cycle. Number of days account receivable+inventory–account payable
FINS	Financial stability. Current assets to turnover (operating revenue, sales)
CF_S	Cash flow to turnover

Profitability ratios:

Oprof	Operating profit (EBIT) to total assets
Nprof	Net profit (profit after tax) to total assets
Omarge	Operating profit to turnover
Nmarge	Net profit to turnover

There are two types of questions in connection with the empirical test attempts to find connections for the peculiarities of working capital management of Hungarian companies in manufacturing sector and confirm them. On the one hand we wait for the test to confirm the sectoral determination by identifying the factors which define working capital. Our hypothesizes are the followings:

1. From the parameters that form working capital the level of current assets is strongly sector-determined, so there is no significant difference in the case of the two company groups.
2. In the level of short-term liabilities/or in their volatility we expect strong difference referring to the examined company groups, assuming that there is a greater sectoral independence in deciding the size of this level.
3. The problems of paying discipline and queuing in case of Hungarian firms can be seen in negative working capital that affects significant range of companies.
4. In case of higher working capital we count with stronger profitability worsening effect.

On the other hand from the empirical tests we expect to confirm that the set of working capital strongly affects the profitability of the firm and its level of liquidity and risk.

Based on preliminary examinations we expect that the peculiarities of operation significantly affect the company's level of working capital. Between the length of the operating cycle and the size of working capital we suppose a strong positive relationship, larger amount of working capital belongs to longer operating cycle. The length of cash cycle is defined by two factors, the relative size of inventories and account receivables to the revenue (operation cycle) and the relative size of accounts payable to the revenue. The cash cycle can equally be linked to the asset and liability side, it expectedly shows larger variance than the operating cycle. Given the operating cycle is strongly determined by the sectoral/business activity, and the cash cycle carries the management/owners greater freedom of decision making in company financing.

The level of current assets forms the level of profitability and liquidity risk of the company. The risk grows together with the rise of the expected return and because of the higher amount of working capital the decreasing return reduces the liquidity risk of the company. From the value of the financial stability indicator we can typically draw conclusions about the set of liquidity, smaller indicator value comes together with higher level of company liquidity. From the indicators that ex-

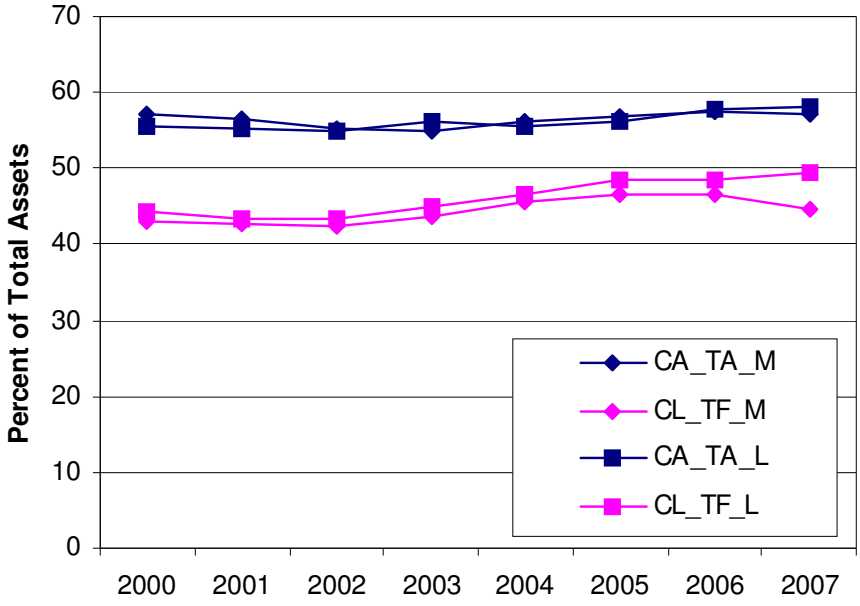
press liquidity, we expect that higher cash flow indicator comes together with higher level of liquidity, possibly with lower debt level. The value of cash flow is the sum of net profit and depreciation.

Based on the relationship of different profitability indicators and the size of current assets we expect that for higher profitability belongs lower level of current assets and normally (in case of normal yield curve) higher short-term liability/debt level.

3. Descriptive statistic

Fig.1. shows the average working capital level of Hungarian firms in the manufacturing sector. According to international tendencies the level of current assets approaches 60% in the total assets. The gap between the current assets formation and the level of short-term liabilities refers to healthy short term asset financing, so that the current assets in line with the size of the gap are financed by long-maturity or infinite maturity shareholder capital. This relationship confirms the realization of the general principle, which says that the maturity structure of liabilities which is adjusted to the assets' maturity structure is the necessary condition of providing liquidity on the long run. No significant difference can be observed between large and medium sized companies, the same tendency can be seen in this front, current assets and short-term liabilities are nearly moving together. One possible answer for this can be that while the dominance of large companies which can be observed against business partners delegates lower amount of working capital to the large sized companies, the principal-agent problem appeals more intensively in large companies than in the case of medium sized companies, because of this there is an ambition to plus liquidity which increases the current assets. These two impacts together can result the joint move of the elements of working capital in large and medium sized companies.

Figure 1. Current assets, current liabilities to total assets ratios of Hungarian large and medium sized manufacturing firms (2000-2007)



Source: own creation
Information extracted from the Amadeus database.
CA_TA_M current assets to total assets, medium sized firms,
CL_TF_M current liabilities to total finance, medium sized firms,
CA_TA_L current assets to total assets, large firms,
CL_TF_L current liabilities to total finance, large firms.

Descriptive statistics of working capital management in 2007 can be found in Table 1. The means are considered primary the aspect of comparison, but the minimum and maximum values of the indicators and the standard deviation carry important information as well.

The level of current assets and their inner structure are almost the same within the sphere of large and medium sized companies. Some difference can be observed in the level of cash pile. Large sized companies averagely hold 6.98% of their assets in cash. Medium sized companies hold higher cash pile, 9.99% of their assets. Cash holding cannot be considered high based on international comparison. Publicly listed firms in Switzerland held an average cash pile between 10 and 15% between 1994 and 2004 (Drobetz et al. 2007). As for other researches the highest cash pile can be observed in the case of Japanese companies (17%), in France (12%), in England (11%), while in the USA cash holding was relatively low, 7% (Guney et al. 2007).

International data apply not only to companies in the manufacturing sector, but can be considered as informative.

The lower Hungarian cash level can be explained theoretically by the level of lower information asymmetry between the owner and the management, but knowing the Hungarian company conditions, we think that the often mentioned under financing doesn't make possible to hold higher cash level. And in connection with this the acceptance of the lack of generally appearing paying discipline 'doesn't require' the higher cash level and doesn't increase the Hungarian level of cash holding to the European average. In the sphere of Hungarian companies the higher cash holding of medium sized companies is in connection with the fact that medium sized companies can get instant loans more difficultly in the case of financial hardness and there is less likely they can reach shorter days sales outstanding by using their power. As a result of all the above mentioned medium sized companies cannot keep down the cash cycle to the level of large sized companies. Standard deviance of the cash pile is the greatest in both company types.

In the valuation of the liability side it is conspicuous that medium sized companies have less credit pile. All the rate of short-term liabilities (44.57%), all the size of loan (9.64%), all the sum of current liabilities and long term debts (54.36%) are lower, than in the case of large sized companies. In the sphere of medium sized companies it occasionally can refer to companies with 15-30 employees, which can get loans more difficultly, primarily because of the lack of credit collateral. (In the sample of 4229 medium sized companies the average number of employees was 45.) Based on preliminary expectations regarding suppliers we expected greater value in the sphere of large sized companies with the explanation that their dominant role can be realized in the payment deadlines, but contrary to our expectations the value of this indicator is nearly the same in the case of large and medium sized companies. The general selling pressure delegates longer duration to both company groups or moreover a large sized company is not forced to strict liquidity follow-up which is typical to the medium sized companies, this can be seen in the lower cash cycle for example. At the same time this can be seen in the lower profitability of large sized companies.

The lower credit pile and higher cash pile of medium sized companies strongly influence the liquidity indicator. The average of liquidity indicators is significantly better in the sphere of medium sized companies than in the case of large sized companies. At the same time the maximum values and the standard deviation of liquidity indicators are significantly higher in the case of medium sized companies. The value of liquidity indicator in the case of medium sized companies is 1.8653 and in the case of large sized companies this value is 1.567. These can refer to a relatively good average liquidity situation, but other bias effects can appear in these values (for example few easily available external sources). Frequent liquidity difficulties which are typical for Hungarian companies cannot be felt with the help

of this indicator. Liquidity is reported to the balance sheet preparation date but the generally good liquidity level is reinforced by the previously confirmed positive net working capital which testifies long term liquidity.

From the peculiarities of operation there is no significant difference in the length of the operating cycle, in the case of large sized companies this is averagely 100 days, in the sphere of medium sized companies it is 108 days, the value of standard deviation is relatively high. The value of cash cycle in the case of large sized companies is 62 days, this value is 75 days in the case of medium sized companies, which difference is already higher. The deviation of cash cycle, its minimum and maximum values also show significant difference compared to the average value.

The indicator of financial stability measures the level of short term liabilities to the revenues. The current liabilities take 38.42% to revenues in case of large sized companies and 32.59% to revenues in case of middle sized companies. The difference can be explained by the higher liability level of large sized companies. The maximum value of this indicator and its standard deviation is significantly higher in case of large sized companies. The value of operating cash flow is related to the revenues, from which we can partly make conclusions to the stability of the company and its responsible operation. The value of this indicator shows a significant difference in case of the two company groups. It is lower in case of large sized companies (5.65%) than in the case of medium sized companies (7.66%), this difference is in accordance with the profitability indicators.

We examined profitability with four indicator groups, as for every indicator the profitability of large sized companies is half of the medium sized companies. Explanation can be found on the cost side with high probability, the lower level of current assets and lower credit pile can make partial explanation to the difference. (Of course except for current assets, our field of examination, other stronger reasons can cause the difference which can be seen in profitability, as for example in the sphere of medium sized companies because of their flexibility there is a higher chance to gain competitive edge, and to preserve it on the longer run.) At the same time if we reverse the question we can make a better approach, the stronger motivation of middle sized companies make them possible to reach higher profitability and lower amount of current assets. We take the nature of owner's control as an important factor. In the sphere of middle sized companies the combination of owner-manager role is more frequent, the stronger owner control can cause higher profitability.

Table 1. Descriptive statistics for the main variables

	Large companies					Medium sized companies				
	N	Min	Max	Mean	Std. Dev.	N	Min	Max	Mean	Std. Dev.
Asset's side										
CA_TA	840	,00	1,00	**,5817**	,21072	4229	,00	1,00	**,5701**	,24241
Stock	825	,00	,71	**,1944**	,13805	3971	,00	,88	**,1786**	,16402
Debtor	689	,00	,84	**,1942**	,16479	1530	,00	,87	**,2058**	,16623
Cash	839	,00	,79	**,0698**	,10858	4211	,00	,90	**,0999**	,13096
Liability's side										
CL_TF	795	,00	2,12	**,4936**	,23979	4183	,00	1,62	**,4457**	,23340
TL_TF	795	,00	2,12	**,58,43**	,25137	4183	,0	3,43	**,5435**	,25487
Loan	637	,00	1,1	**,1277**	,15547	1484	,00	,82	**,0964**	,12732
Creditor	691	,00	,8	**,154**	,13866	933	,00	2,01	**,1579**	,16974
Liquidity										
NCA_TA	795	-1,2	0,86	**,0848**	,26133	4182	-1,08	,94	**,1235**	,27645
CA_CL	795	,01	23,09	**1,567**	1,58472	4178	,03	61,89	**1,8653**	2,49460
ACID	781	,04	23,09	**1,0593**	1,3008	3923	,01	44,34	**1,2976**	2,05429
Operation analysis										
OPC	686	,00	852,09	**100,27**	80,8514	1524	,00	758,73	**108,45**	82,8924
CCC	685	-277,8	624,94	**62,255**	72,7074	1478	-979,40	648,37	**75,53**	85,6593
FINS	789	,02	8,43	**,3842**	,52020	4177	,00	5,61	**,3259**	,34556
CF_S	788	-1,58	,55	**,0565**	,13820	4147	-1,47	1,64	**,0766**	,11225
Profitability										
Oprof	835	-1,19	,82	**,0544**	,14014	4209	-1,82	3,27	**,1025**	,21363
Nprof	833	-1,27	,66	**,0384**	,13454	4208	-1,60	1,31	**,0644**	,13238
Omarge	832	-2,4	,60	**,0280**	,15295	4223	-1,76	1,23	**,0453**	,11829
Nmarge	829	-2,43	,54	**,0182**	,15125	4203	-1,72	1,29	**,0356**	,10946

Information extracted from the Amadeus database. CA_TA is the ratio of current assets to total assets, Stock is the ratio of stock to total assets, Debtor is the ratio of account receivable to total assets, Cash is the ratio of cash to total assets, CL_TF is the ratio of current liabilities to total financing, TL_TF is the ratio of long term debt and current liabilities to total financing, Loan is the ratio of short term debt to total financing, Creditor is the ratio of account payable to total financing, NCA_TA is the ratio of net current assets to total assets, CA_CL is the liquidity ratio, ACID is the liquidity quick ratio, OPC is the number of days operating cycle, CCC is the number of days cash cycle, FINS is the ratio of current liability to sales, CF_S is the ratio of operating cash flow to sales, Oprof is the ratio of return on assets, compare EBIT to total assets, Nprof is the ratio of net profit to total assets, Omarge, operating margin is the ratio of, EBIT to sales, Nmarge is the ratio of net profit to sales.

Source: own creation

4. Correlation and regression analysis

With the help of correlation analysis we intend to give explanation to what kind of factors can affect the size of current assets and short term liabilities, and what kind of factors play important role in defining liquidity.

Instead of presenting the results of correlation matrixes one by one, we summarized the results in tables contain large and medium sized company data for 2007 (Table 2-4).

Table 2. Correlation coefficients

		Large	Medium
CA_TA_2007	Pearson Correlation	1	1
	N	840	4229
DEBT_2007	Pearson Correlation	,494**	,501**
	N	689	1529
STOCK_2007	Pearson Correlation	,386**	,413**
	N	825	3971
CASH_2007	Pearson Correlation	,334**	,361**
	N	839	4211
CL_TA _2007	Pearson Correlation	,328**	,326**
	N	795	4182
FINS_2007	Pearson Correlation	-,172**	,106**
	N	789	4182
NMARG_2007	Pearson Correlation	,124**	-,142**
	N	829	4176

Source: own creation

**. Correlation is significant at the 0.01 level (2-tailed)

In accordance with the expectations, *current assets* are primarily determined by the sectoral peculiarities of operation, production and services. From the factors that determine the level of current assets in the first place there are those effects which form the specialties of operation (inventories, accounts receivable, cash). According to our preliminary expectations the size of inventories affects the level of current assets the most. However, based on our data, accounts receivable affect current assets more significantly in case of large sized companies and in the sphere of medium sized companies as well. In the case of medium sized companies the average size of accounts receivable are high as well (0.2058), this refers to the fact that the payment deadline for customers, the allowances for customers, the customer-

focused managing of revenues play a significantly more important role in shaping the rate of current assets, than managing inventories (0.186).

The liability side significantly affects the current assets as well. The strength of the relationship is 0.33 between short term liabilities and current assets in both company types. The financial stability and the net margin don't show unambiguous and substantial effects. The importance of profitability indicators was negligible in every regression analysis as well. The values of ROA type indicators can be regarded as low (net profit: large companies 3.84%, medium sized companies 6.44%). The relationship between the working capital and the level of profitability which was showed in international researches (Lazadiris et al. 2005) cannot be pointed in companies in the Hungarian manufacturing sector. This can be traced back to the fact that profitability is not a dependent variable. Meanwhile the level of working capital can be a dominant factor in shaping profitability, and reversely, in shaping working capital, the parameters coming from the peculiarities of sectoral/business activity affect the level of working capital more strongly than profitability. We ran the variables separately to the large sized and medium sized companies, the order of the first six companies was the same in both company types, after this there where smaller differences regarding the strength of the relationship.

Table 3. Correlation coefficients

		Large	Medium
CL_TF_2007	Pearson Correlation	1	1
	N	795	4183
TL_TF_2007	Pearson Correlation	,852**	,796**
	N	795	4183
CA_TA-2007	Pearson Correlation	,328**	,326**
	N	795	4182
LOAN_2007	Pearson Correlation	,467**	,424**
	N	633	1480
CCC_2007	Pearson Correlation	-,139**	-,082**
	N	660	1475
FINS_2007	Pearson Correlation	,215**	,336**
	N	789	4177

Source: own creation

**. Correlation is significant at the 0.01 level (2-tailed)

In the course of examining those factors that explain *short term liabilities* we analyzed if there is any common factor among those factors that shape current assets

and the level of short term liabilities, to what extent those factors that shape the asset side and the liability side can be linked. Short term liabilities show close correlation primarily with the credit pile (short-term and long-term credits). However suppliers are not among the significant independent variables. The impact of suppliers can be demonstrated through cash cycle indicator, but the impact of cash cycle is not significant. Short term liabilities correlate with the average level of current assets (0.32) from the factors of the asset side, so we can state that the size of current assets affects the liabilities. The effect of the amount of cash is not among the independent variables it is not provable that firms handle cash pile as a buffer, reserve source. From profitability indicators none is among independent variables, it couldn't be pointed that more profitable companies have lower liabilities.

Table 4. Correlation coefficients

		Large	Medium
ACID_2007	Pearson Correlation	1	1
	N	781	3923
TL_TA_2007	Pearson Correlation	-,464**	-,567**
	N	781	3923
CASH_2007	Pearson Correlation	,306**	,524**
	N	780	3912
STOCK_2007	Pearson Correlation	-,226**	-,300**
	N	781	3923
CL_TA_2007	Pearson Correlation	-,450**	-,532**
	N	781	3923
NPROF_2007	Pearson Correlation	,131**	,135**
	N	781	3923

Source: own creation

**. Correlation is significant at the 0.01 level (2-tailed)

From the connection of the asset and liability side we can conclude the *liquidity* situation of the company. Dealing with variables that explain liquidity we intend to find the answer to the question whether the peculiarities of operation or the financing motivations determine the liquidity situation of a company. From liquidity indicators we show the values of independent variables which were used to explain the quick ratio, which is the most narrowly interpreted liquidity indicator. The liability side affects liquidity the most in both company types. The strongest relationship can be pointed in middle sized companies, the strength of the relationship between the total liabilities and the quick ratio is 0.567, the correlation coefficient of short term liabilities refers to strong relationship with a value of 0.532. The direction of

the relationship is negative, the higher the level of liabilities the smaller the quick ratio. On the second place we emphasize the relationship of cash and quick ratio. The relationship is positive among middle sized companies, the strength of the relationship is 0.524 between the level of cash and quick ratio, in the case of large sized companies the strength of the relationship is 0.306. In connection with liquidity its relationship with inventories can be emphasized from the factors of the asset side. The direction of the relationship is negative, in case of middle sized companies it is stronger (0.30) than in large companies (0.226). Higher the level of stocks less the liquidity position of companies.

The correlation analyse helped to identify the factors determine the liquidity and factors effect the size of current assets and short term liabilities. The regression model offers more specific information on factors form firm's liquidity.

The basic regression model for liquidity:

$$LIQ_{i,t} = (\alpha_i + \alpha_t) + \sum_{j=1}^{n} \beta_j X_{i,j,t} + \varepsilon_{i,t.}$$

Where $LIQ_{i,t}$ is the dependent variable of firm i at the end of year t. α_i and α_t represent firm-specific and time-effects. $X_{i,j,t}$ dependent variables for i firm, t time and j variables, β_j coefficient of independent variables. The null hypothesis is the correlation between the independent and dependent variable do not differ from zero.

The regression results, concerning quick liquidity ratios of firms, are reported by firm size in Table 6. The regression analysis concerns business years of 2004-2007 and were run separately to the large and mediums sized sample. We use SPSS statistic (stepwise diagnosis, forward methods) to built up linear regression model variables and we use simple panel model. The time effects were built in using SPSS statistic restructure data wizard method.

Table 6. Panel model. Dependent variable: Liquidity quick ratio

Large			Medium		
	Unstandardized Coefficients	t		Unstandardized Coefficients	t
(Constant)	0,984**	29,392	(Constant)	1,0771**	36,404
CASH	0,482**	3,667	CASH	0,459**	3,676
CA_TA	2,382**	33,270	CA_TA	2,909**	34,755
STOCK	-2,240**	25,994	STOCK	-2,736**	-0,543
CL_TA	-1,854**	-24,127	CL_TA	-2,440**	-31,320
DEBT	-,239**	-3,194	DEBT	-0,585**	-6,474
TL_TF	-,150**	-2,190	TL_TF	,001**	0,013
R Square	,736		R Square	,647	
Adjusted R Square	,735		Adjusted R Square	,646	
Std. Error of the Estimate	,27705		Std. Error of the Estimate	0,44798	

Source: own creation
**:significant at the 0.01 level

The value of R Square is 73.6% in case of large companies and it falls to 64.7% in medium sized companies. The R Square can be considered high. In the literature of corporate finance can be often found a value around 30% in the relevant topic. The other estimation attributes of the model are on an acceptable level.

The regression results support our main hypothesis that both asset and liability side makes effect on company liquidity position. Current assets and current liabilities to total assets ratios have the highest beta value. In case of the medium sized companies both current assets and current liabilities have a strong influence on the company liquidity position with a value of 2.909 and -2,440 respectively. The positive beta value of current assets signals that company liquidity ratio increases when the level of short lived assets, as "collateral" increases, and the negative value of current liabilities indicates that firm's liquidity is depressed when the liabilities increases. The beta value of current liabilities indicates less stronger effect in the group of large firms. The negative relationship between stock, debtor and liquidity explains that the high level of stock and account receivable has a negative effect on the available cash stocks, and the firm's liquidity. The cash holding also shows a strong effect on liquidity especially in large sized firms. The description and correlation analyse marks the distinguished role of cash holding as well. No significant difference can be observed between the two company groups except the effect of cur-

rent liability and debtor, which stress the importance of the managing the account payable and receivable.

5. Conclusions

Theoretically the size of working capital is defined by two important factors: current assets and short term liabilities. The results of correlation matrixes and linear regressions show that however the impact of the asset side is strong, by managing short term liabilities more significant effects can be reached regarding the size of working capital and company liquidity.

From the results of the tests and referring to our hypothesizes we state the followings:

1. We consider the 1st and 2nd hypothesizes confirmed. Regarding both current assets and short term liabilities, and regarding the level of working capital as well we discovered strong correlation which reinforces the strong sectoral/business determination. Positive net working capital confirms the validity of the matching the term structure of assets and liabilities in the case of small and medium sized companies.
2. We didn't find our hypothesis valid that deviation is higher regarding CL/TF indicators than in the case on CA/TA.
3. In the sphere of medium sized companies the indicators coming from the liability side don't show higher deviation. (Only the higher volatility of the cash cycle refers to the fact that the sectoral determination of the asset side is stronger and the independence of decision making is greater on the liability side.)
4. Lower profitability level which is expected along with higher level of working capital is not confirmed by the data of medium sized companies. However this doesn't mean that this effect of higher net working capital is not valid, we just say that the level of profitability in the case of this parameter is overwritten by other factors. (We examine those parameters that shape working capital, not those, that affects profitability.)

Regarding our research the followings can mean further possibilities for additional studies: Examining the relationship of cash-cash equivalent and corporate governance. Besides the examination of trade credit, as an examination of the source of corporate financing could make it possible to clarify the role and significance of accounts payable and accounts receivable, and to explore the relationship between trade credit and bank credit.

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