Influence of Net Working Capital on Trade Profitability in Serbia

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Abstract
The problem of managing working capital, i.e. net working capital in trade, is very specific, challenging, current, significant and complex. In order to achieve the target financial performance, it is necessary to manage working capital as efficiently as possible. Based on that, this paper analyses the dynamics of size and the impact of net working capital on the profitability of trade in Serbia. In the period 2013 - 2021, in the trade of Serbia, the maximum amount of net working capital was achieved in 2021, the maximum percentage of net working capital from assets was achieved in 2021, the maximum percentage of net working capital from sales was achieved in 2021, and the maximum profitability was achieved in 2021. In the specific case, there is a strong correlation between profitability and net working capital of trade in Serbia. The coefficient of determination is high (Adjusted R Square .941; Sig. F Change .000). The influence of net working capital on the profitability of trade in Serbia is very significant (Sig. .000). This means, in other words, that more efficient management of net working capital can have a significant impact on the profitability of trade in Serbia. Observed dynamically, the amount of net working capital of trade in Serbia has increased recently. This had a positive impact on its liquidity, solvency, efficiency and profitability. Recently, the productivity of trade in Serbia has also increased. The factors that influenced it were: favourable economic climate, foreign retail chains, application of new business models, new concepts of management of costs, income, profit, customers, product categories, application of the concept of sustainable development and digitization of the entire business.

Keywords: current assets; short-term liabilities; net working capital; profitability; Serbian trade;

JEL classification: L81; M31; M41; O32;

DOI: http://doi.org/10.24818/ejis.2023.04

1. Introduction

As is well known, it is a very challenging problem to manage working capital, that is, net working capital in trade, considering its specificities in relation to other sectors. Considering that, this paper analysis the dynamics of the size and influence of current assets, i.e. net current assets on the profitability of trade in Serbia. The object of research in this paper is manifested in this. The goal and purpose of this is to fully understand the dynamics of the size of current assets, that is, net current assets and their impact on the profitability of trade in Serbia in order to improve it in the future by applying adequate measures. The scientific and professional contribution of this paper is reflected in this.

In the general sense of the word, the topic of analysis of net working capital is very significant, continuously current, complex and challenging. This especially applies to trade, considering that the largest part of the total assets refers to working capital. Bearing this in mind, the research topic in this paper is the impact of net working capital on the profitability of trade in Serbia. In the general sense of the word, the topic of analysis of net working capital is very significant,

Received: 18 April 2023; Revised: 2 May 2023; Accepted: 15 May 2023

continuously current, complex and challenging. This especially applies to trade, considering that the largest part of the total assets refers to working capital. Bearing this in mind, the research topic in this paper is the impact of net working capital on the profitability of trade in Serbia.

In the literature, both in the world and in Serbia, as far as we know, there is no special study devoted to the analysis of the influence of net working capital on the profitability of trade in Serbia. In this sense, this paper represents a contribution to the literature and research problem. It enables the comparison of the obtained results at the world level.

The key research question in this paper is: what are the effects of net working capital on the profitability of trade in Serbia? In this context, for the sake of the whole, other related research issues were also analyzed (sectoral analysis of net working capital, effects of total current assets on trade profitability, net working capital of selective trading companies and others).

As far as the theoretical and practical relevance of this paper is concerned, it points to the key theoretical dimensions of the management of net working capital, with special reference to the specifics of trade. This provides the basis for the practical improvement of the efficiency of the management of net working capital in trade. In this context, to achieve the target impact of net working capital on trade profitability (in the specific case in Serbia).

The structure of the work is, as a consequence of the subject, aim and purpose of the research, composed so that, in addition to the Introduction and Conclusion, it contains the following units:

1.Theoretical Background;

2.Research methodology and empirical data;

3.Results and Discussion:
- 3.1. Net working capital of trade in Serbia,
- 3.2. Effects of total current assets on profitability trade in Serbia,
- 3.3. Effects of net working capital on trade profitability in Serbia, and
- 3.4. Net working capital of selected trading companies in Serbia.

2. Theoretical Background

Researching financial performance in trade from different angles is very challenging (Ramanlal, 1999; Vuković et al., 2022; Abuhommous et al., 2022). Considering the topicality, complexity and importance, there is a very rich literature in the world and in Serbia devoted to the analysis of financial performance in trade. In this context, net current assets are also analyzed. In doing so, they are investigated from the aspect of specificity and factors that influence the size of net working capital in trade (Berman et al., 2018; Dekimpe, 2019; Evans, 2005; Pitari, 2020; Li et al. , 2014; Garg and Gumbochuma, 2015; Wanyoike et al., 2021; Kalan & Gokasar, 2020; Lyngstadaas, 2020; Macatumbas Corpus & Bool, 2021; Simon & Trihi, 2021; Hatem & Yomba, 2018; Heerlen et al., 2020). Likewise, net working capital is analysed from the aspect of impact on trade performance (profitability) (Total et al., 2013; Syeda, 2021; Anton & Afloarei Nucu, 2021; Masadeh et al., 2018; Mandipa & Sibindi, 2022; Akgün & Memiş Karataş, 2020; Arnaldi et al., 2021; Kovač et al.,

2021). Certain works are devoted exclusively to the econometric analysis of inventories as a significant component of working capital, i.e. net working capital in trade (Adebayo, 2017; Gaur et al., 2005; Kolias et al., 2011; Krishnankutty, 2011; Kalan & Gokasar, 2020; Knežević, 2015; Masadeh et al., 2018). In the relevant literature of Serbia, the problem of working capital and the sources of their financing in trade were investigated (Lukic & Hadrovic Zekic, 2019 ; Lukic, 2011, 2015, 2019, 2020, 2021; Lukic et al., 2020). In this paper, the research is primarily focused on the analysis of the dynamics of the size of net current assets and their impact on the profitability of trade in Serbia.

The research hypothesis is based on the fact that net working capital is a significant factor in the financial performance of all sectors, which means trade as well. Their adequate management can significantly influence the achievement of the target financial performance (liquidity, solvency, efficiency, profitability) of trade, in the specific case of Serbia. Ratio analysis, regression analysis (applied research methodology in this work), multi-criteria decision-making models (MCDM) and DEA (Data Envelopment Analysis) analysis play a significant role in this.

Net working capital is generally defined as the difference between current assets and current liabilities (short-term liabilities). It shows which part of current assets is financed from long-term sources of funds. The larger the amount of net working capital, the better the liquidity and solvency. The size of net working capital differs by individual national economies (countries), sectors, and companies. In trade, due to the high share of working capital in total assets, the size of net working capital is a significant determinant of business and financial performance, i.e. liquidity, solvency and profitability. With this in mind, it is necessary for financial managers, company owners, business policy makers to define a strategy for optimizing the size of net working capital. Net working capital is a significant indicator of financial performance of trading companies (Basyith et al., 2021; Mandipa & Sibindi, 2022; Waweru & Atheru, 2022; Liebersohn et al., 2022; Ngari & Kamau, 2022; Lukić, 2020, 2022 a,b,c, 2023 a,b; Muhammad Ahmad, Rabia Bashir & Hamid Waqas, 2022). They show the part of current assets that is financed from long-term sources of funds. Inflows of net working capital are: profit, accumulation, sale of fixed assets and long-term loans. Outflows of net working capital are: loss, purchase of fixed assets and repayment of long-term loans. In order to analyse the size of net current assets as realistically as possible, they are expressed as a percentage of assets and sales. The percentage of net working capital from assets, i.e., sales, shows how much net working capital was generated with 100% of assets, i.e., sales, and connects short-term liquidity with the cycle of business cash flows (i.e. current market operations). Therefore, it enables the assessment of the influence of assets, i.e., sales, on the size of net current assets. The smaller the percentage of net working capital from assets, i.e., sales, the better the financial performance, in our case of trade (trading companies), because the interest costs are lower.

In addition to the "accounting" calculation of net current assets as the difference between current assets and short-term liabilities, non-monetary net current assets are also determined. Non-monetary net working capital assets are determined as: receivables from operations plus inventories minus short-term liabilities, i.e., non-monetary net current assets = receivables from operations + inventories - short-term liabilities. In this case, cash and cash equivalents are not taken into account because they react spontaneously (quickly) to changes in sales. In addition, non-monetary net working capital enables efficient business management (i.e., working capital) in the function of achieving target performance.

The size of net working capital is influenced by numerous factors. These are (Damodar, 2007): (1) Cash flows - cash inflows affect the increase and cash outflows affect the decrease of net current assets. (2) Credit policy – firms that offer liberal credit have higher net working capital than firms that operate with cash. (3) Price policy - firms with a lower profit margin and higher turnover usually have lower working capital (as a percentage of revenue) than firms operating with a higher profit margin and lower turnover. (4) Selection of products - companies that offer a wider range of products, generally speaking, have larger inventories and thus higher net working capital compared to companies with a limited range of products. (5) Size and creditworthiness of the company - with the choice that net working capital affects the size of total working capital through supplier receivables from buyers for supplied sold products, firms that are able to define the credit terms of suppliers, given their size or good credit history, tend to have lower net working capital than firms with financial problems. Adequate control of these factors can certainly significantly influence the size of net current assets.

Negative non-working capital indicate that current assets are less than current liabilities. This means, in other words, that the company uses credit from the supplier instead of the bank, which can be more favourable. Negative net working capital have positive and negative sides. The positive side is if there is a faster turnover of accounts receivable and inventory. The negative side is if the turnover of accounts receivable and inventory is slow.

Net working capital is different by sector. ***Table 1*** shows the sectoral analysis of net working capital in Serbia for 2021.

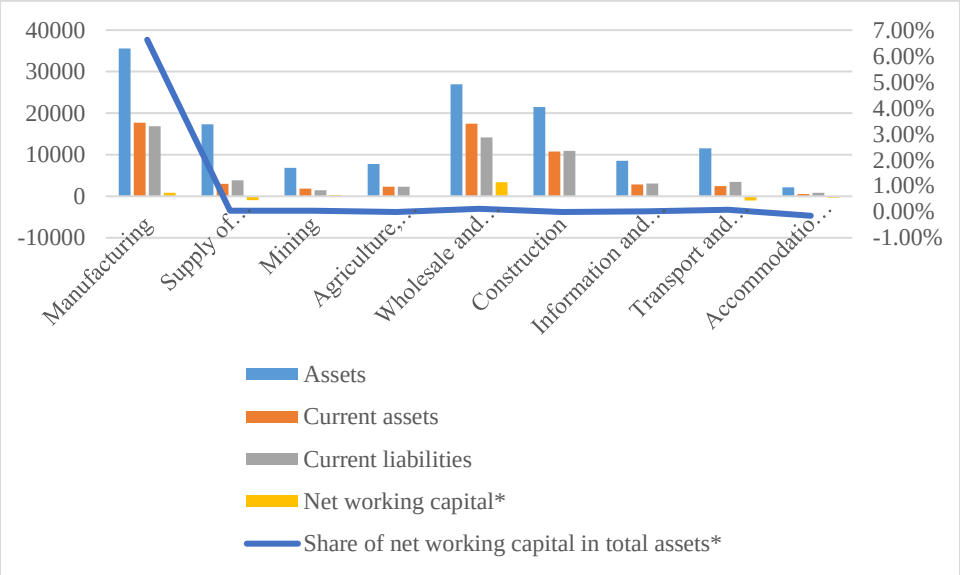
Table 1. Sectoral analysis of net working capital in Serbia

(million EUR)

	Assets	Current assets	Current liabilities	Net working capital*	Share of net working capital in total assets*
Manufacturing	35567	17687	16848	839	6.63%
Supply of electricity, gas, steam and air conditioning	17312	2972	3846	-919	0.05%
Mining	6859	1805	1442	306	0.04%
Agriculture, forestry and fishing	7808	2287	2308	-21	-0.00%
Wholesale and retail trade, repair of motor vehicles and motorcycles	26930	17500	14145	3353	0.12%
Construction	21473	10771	10949	-178	0.00%
Information and communications	8562	2873	3038	-165	0.02%
Transport and storage	11580	2454	3456	-1002	0.08%
Accommodation and food services	2136	552	874	-332	-0.15%

Note: The data are presented in millions of euros. Conversion of dinars into euros was done by the author.
*Author's calculation
Source: Annual reports for 2021. Agency for Economic Registers of the Republic of Serbia

Figure 1. Participation of net working capital in the total assets of the sector



Source: own research

In Serbia, the size of net working capital differs by sector. Thus, for example, in the processing industry of Serbia, the share of net working capital in total assets is 6.63%. The share of net working capital in total assets in Serbian trade is 0.12%%. The share of net working capital in the total assets of Transportation and Storage in Serbia is 0.08%. The share of net working capital in the total value of accommodation and catering services in Serbia is -0.15%. These differences, among other things, arise due to differences in the very nature of their business. Trade is generally characterized by a high share of working capital in total assets. Hence, it is natural that they also have a significant amount of net working capital. This means, in other words, that the most effective management of net working capital can significantly influence the achievement of the target profitability in Serbian trade. It is therefore important to continuously analyze the impact of net working capital on the profitability of trade in Serbia. The sectors mining, agriculture, forestry and fishing, construction have a negative size of working capital. This means that they owe too much to their suppliers. These differences arise from the very nature of their business. To illustrate, in the consumer industry the monetary conversion cycle in days in Q4 - 2021 was by individual sectors: automobiles 29.6, consumer products 29.7, retail, wholesale and distribution 8.5 and transport, hospitality and services 17.0 (Deloitte: Working Capital Roundup A look back at 2021, p. 6). In Serbian trade, the monetary conversion cycle is negative and amounts to an average of 86 days. Serbian trade is therefore in a less favourable position according to this indicator compared to the "industrial standard".

Even within the trade itself, the size of net working capital differs by sector and country. This is illustrated by the data in ***Table 2***. These differences are, among other things, caused by differences in the very nature of the product categories that the store sells.

Table 2. Analysis of net working capital in trade by sector and country

Industry Name	Number of firms	Acc Rec/ Sales	Inventory/Sales	Acc Pay/ Sales	Non-cash WC/ Sales
Oil/Gas Distribution	23	9.88%	3.05%	7.01%	3.52%
Food Wholesalers	14	5.83%	7.01%	6.72%	6.34%
Retail (Automotive)	30	2.52%	13.40%	8.30%	8.14%
Retail (Building Supply)	15	1.44%	18.57%	9.64%	10.00%
Retail (Distributors)	69	13.10%	15.68%	10.47%	17.14%
Retail (General)	15	1.03%	12.09%	10.05%	2.62%
Retail (Grocery and Food)	13	1.15%	5.91%	5.29%	-0.58%
Retail (Grocery and Food) - US	13	1.15%	5.91%	5.29%	-0.58%
Retail (Grocery and Food) - Shina	13	1.15%	5.91%	5.29%	-0.58%
Retail (Grocery and Food) - Emerging Markets	75	2.33%	9.09%	10.36%	-3.58%
Retail (Grocery and Food) - Western Europe	31	2.70%	7.16%	14.74%	-6.39%
Retail (Grocery and Food) - India	5	0.31%	9.89%	2.63%	8.36%
Retail (Grocery and Food)- Japan	50	3.83%	3.44%	7.22%	-6.77%
Retail (Online)	63	5.34%	7.29%	12.61%	-0.43%
Retail (Special Lines)	78	2.40%	14.10%	9.39%	7.81%

Variable	Explanation	Why?
Number of firms	Number of firms in the industry grouping.	Law of large numbers?
Acc Rec/ Sales	Aggregated accounts receivable divided by aggregated sales, across all companies in group.	Investment in receivables, a consequence of selling on credit, and a drain on cash.
Inventory/Sales	Aggregated inventory divided by aggregated sales, across all companies in group.	Investment in inventory, a consequence of carrying goods in inventory, and a drain on cash.
Acc Pay/ Sales	Aggregated accounts payable divided by aggregated sales, across all companies in group.	Value of payables, a consequence of using credit in operations, and a source of cash flow.
Non-cash WC/ Sales	Aggregated non-cash working capital divided by aggregated sales, across all companies in group. (Non-cash working capital = (Current Assets - Cash) - (Current liabilities - ST Interest-bearing Debt))	Overall investment in non-cash working capital, and a drain on cash.

Source: Working Capital Ratios by Sectors (US). Date of Analysis: Data used is as of January 2023**.** Download as an excel file instead**:** https://www.stern.nyu.edu/~adamodar/pc/datasets/wcdata.xls. http://www.damodaran.com

What does the size of net working capital mean for trade, or trading companies? The size of net working capital is an indicator of liquidity and solvency. The greater the amount of net working capital, the better the liquidity, i.e. solvency of trade, i.e. trading companies. It is an important factor in the profitability of trade, that is, trading companies. All in all, the size of net working capital affects the overall performance of trade, i.e. trading companies.

3. Research methodology and empirical data

The analysis of the treated problem in this paper is based on the fact that net working capital is, by nature, a significant factor in the profitability of trade, in the specific case of Serbia. Hence, it is necessary to manage the net working capital as efficiently as possible in order to achieve the target profitability of the trade. It requires a good knowledge of the theory, methodology and empirics related to net working capital.

The research methodology of the treated problem in this paper is based on financial analysis, ratio analysis and statistical analysis. As part of the financial analysis, the methodology for determining net working capital and the share of net working capital in assets and sales is presented. Net working capital is determined as:

Net working capital = Current assets - Current liabilities

The following indicators (ratio numbers) were used in the ratio analysis:

1. Profitability (Net profit / Assets) (%)
2. Accounts receivable turnover ratio (in days)
3. Inventory turnover ratio (in days)
4. Accounts Payable Turnover Ratio (in days)
5. Financial leverage (Assets / Capital)
6. Cash conversion cycle

The money conversion cycle is determined as follows:

Cash conversion cycle = Days to tie up inventory + days to collect receivables – days to pay suppliers

Due to the nature of the treated problem, the statistical analysis used: descriptive statistics, correlation, and regression analysis (Model Summary, ANOVA, Coefficients, Collinearity Diagnostics, Residual Statistics).

In the analysis of the impact of net working capital on the profitability of trade in Serbia, all trading companies (Delhaize Serbia, Nelt Co., Mercata VT, Phoenix Pharma, Koefik, Agromarket, Magna Pharmacia, Elixir Group, Invej, LIDL Serbia, etc.) that regularly submit their annual financial reports to the Agency for Economic Registers of the Republic of Serbia.

This research analyzes the data provided by the Agency for Economic Registers of the Republic of Serbia, which were displayed in accordance with the relevant international standards. Therefore, there are no limitations regarding the international comparison of the obtained results.

4. Results and Discussion

The theoretical analysis showed that net working capital is an important instrument of financial management in the function of achieving the target performance of the economy, sector and company.

4.1. Net working capital of trade in Serbia

Given the importance of net working capital highlighted above, in this paper we will analyse the dynamics of the size of net working capital of trade in Serbia for the period 2013 - 2021. **Table 3** shows the relevant initial data for the analysis of the dynamics of the size and impact of net working capital on trade performance/profitability in Serbia.

Table 3. Initial data (million EUR)

Year	Assets	Current assets	Short-term liabilities	Sale	Net profit
2013	18374	11576	11635	24591	763
2014	17664	11209	11055	23990	739
2015	19002	12111	11712	25452	810
2016	19659	12786	12572	28120	859
2017	20357	13340	12507	28379	1043
2018	21278	13935	12846	31287	1036
2019	22817	14832	13367	33704	1185
2020	24132	15939	13367	31165	1454
2021	26930	17500	14145	36854	1769

Note: Data are expressed in millions of euros. Conversion of dinars into euros was done by the author
Source: Annual reports for 2021. Agency for Economic Registers of the Republic of Serbia

Table 4 and ***Figure 2*** show the dynamics of net current trade assets in Serbia.

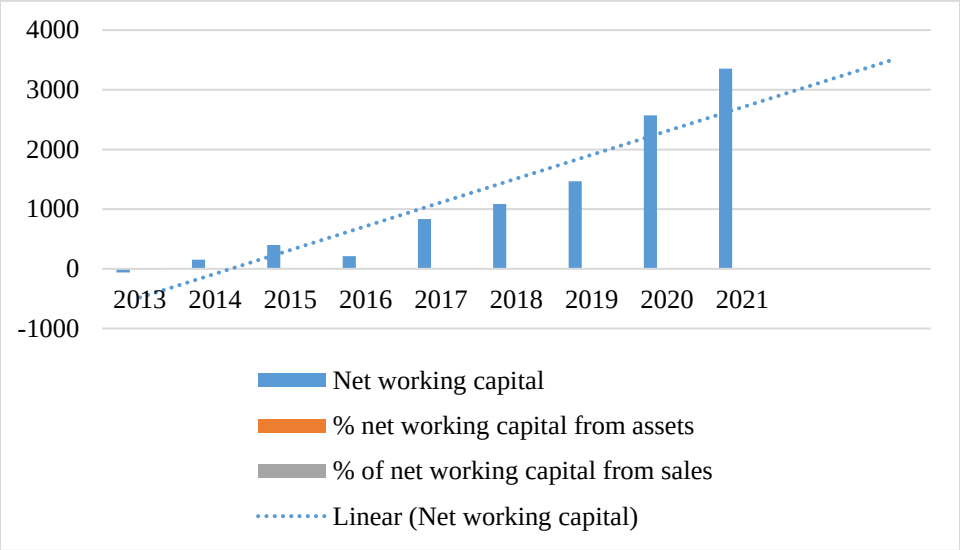
Table 4. Net working capital of trade in Serbia

	Net working capital	% net working capital from assets	% of net working capital from sales
2013	-59	-0.32	-0.24
2014	154	0.7	0.64
2015	399	2.10	1.57
2016	214	1.09	0.76
2017	833	4.09	2.84
2018	1089	5.12	3.48
2019	1465	6.42	4.35
2020	2572	11.35	8.79
2021	3355	12.46	9.10

Descriptive Statistics			
Mean	1113.5556	4.7789	3.4767
Median	833.0000	4.0900	2.8400
Std. Deviation	1170.97098	4.59461	3.42596
Minimum	-59.00	-.32	-.24
Maximum	3355.00	12.46	9.10

Note: Net working capital is expressed in millions of euros. Conversion of dinars into euros was done by the author. Author's calculation

Figure 2. Dynamics of net working capital of trade in Serbia



Source: own research

By definition, two significant levers of net working capital are current assets and short-term liabilities. In order to achieve the target size of net current assets, considering the importance, it is necessary to effectively manage current assets and short-term liabilities. In the period 2013 - 2021, the maximum amount of net working capital in 2021, the maximum percentage of net working capital from assets in 2021 and the maximum percentage of net working capital from sales in 2021 were achieved in the trade of Serbia. This had a positive impact on its liquidity, solvency, efficiency and profitability.

4.2. Effects of total current assets on profitability trade in Serbia

Before, we look at the impact of the size of net working capital on the profitability of trade in Serbia , we will analyse the impact of the size of total current assets on the profitability of trade in Serbia using regression analysis.

We will investigate the effects of working capital on the profitability of trade in Serbia using the following regression model:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + e$$

where Y = profitability, X_1 = accounts receivable turnover ratio in days, X_2 = inventory turnover ratio in days, X_3 = payables turnover ratio in days, X_4 = financial leverage, a and b = coefficients and e = random error.

Table 5 shows the initial data for the analysis of the impact of working capital on the profitability of trade in Serbia.

Table 5. Initial data

Year	Profitability (Net profit / Assets) (%)	Accounts receivable turnover ratio (in days)	Inventory turnover ratio (in days)	Accounts Payable Turnover Ratio (in days)	Financial leverage (Assets / Capital)
2013	4.15	65.02703	60.81848	172.7017	2.892232
2014	4.19	64.80457	61.15432	168.198	2.728213
2015	4.26	62.95666	65.51044	167.9646	2.775581
2016	4.55	59.32309	64.55215	163.1896	2.688743
2017	5.13	58.85157	64.8777	155.3923	2.599068
2018	4.87	57.32994	57.32994	149.8693	2.48217
2019	5.20	56.91018	61.69942	144.7574	2.500271
2020	6.03	60.92568	72.35576	154.5909	2.398594
2021	6.57	56.3888	74.25306	140.0966	2.402297
Descriptive Statistics					
Mean	4.9944	60.2797	64.7279	157.4178	2.6075
Median	4.8700	59.3231	64.5522	155.3923	2.5991
Std. Deviation	.84617	3.33061	5.49470	11.31229	.17447
The minimum	4.15	56.39	57.33	140.10	2.40
Maximum	6.57	65.03	74.25	172.70	2.89

Note: Author's calculation

Source: Annual reports for 2021. Agency for Economic Registers of the Republic of Serbia

Table 6 shows the correlation matrix of the initial data.

Table 6. Correlations

		1	2	3	4	5
1 Profitability	Pearson Correlation	1	-.673 *	.777 *	-.836 **	-.884 **
	Sig. (2-tailed)		.047	.014	.005	.002
	N	9	9	9	9	9
2 Accounts receivable turnover ratio	Pearson Correlation	-.673 *	1	-.224	.920 **	.791 *
	Sig. (2-tailed)	.047		.562	.000	.011
	N	9	9	9	9	9
3 Inventory turnover ratio	Pearson Correlation	.777 *	-.224	1	-.369	-.486
	Sig. (2-tailed)	.014	.562		.328	.185
	N	9	9	9	9	9
4 Accounts Payable Turnover Ratio	Pearson Correlation	-.836 **	.920 **	-.369	1	.909 **
	Sig. (2-tailed)	.005	.000	.328		.001
	N	9	9	9	9	9
5 Financial leverage	Pearson Correlation	-.884 **	.791 *	-.486	.909 **	1
	Sig. (2-tailed)	.002	.011	.185	.001	
	N	9	9	9	9	9
*. Correlation is significant at the 0.05 level (2-tailed).						
**. Correlation is significant at the 0.01 level (2-tailed).						

Note: Author's calculation

Correlation analysis shows that there is a strong correlation between profitability and observed variables at the level of statistical significance.

Table 7 and ***Figure 3*** show the results of the regression analysis.

Table 7. Results of regression analysis

Model Summary [b]										
Model	R	R Square	Adjusted R Square	Std. Error of the	Change Statistics					Durbin-Watson
					R Square	F	df1	df2	Sig. F	
1	.985 [a]	.971	.942	.20447	.971	33.251	4	4	.003	1.694
a. Predictors: (Constant), Financial leverage, Inventory turnover ratio, Accounts receivable turnover ratio, Accounts										
b. Dependent Variable: Profitability										

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.561	4	1.390	33.251	.003 [b]
	Residual	.167	4	.042		
	Total	5.728	8			
a. Dependent Variable: Profitability						
b. Predictors: (Constant), Financial leverage, Inventory turnover ratio, Accounts receivable turnover ratio, Accounts						

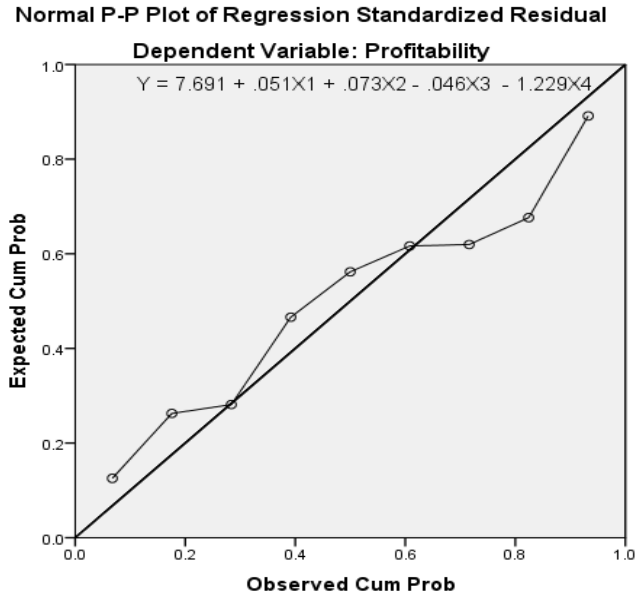
Coefficients [a]											
Model		Unstandardized		Standardized	t	Sig.	Correlations			Collinearity	
		B	Std.	Beta			Zero-	Partial	Part	Tolerance	VIF
1	(Constant)	7.691	2.082		3.695	.021					
	Accounts	.051	.060	.200	.851	.443	-.673	.392	.073	.133	7.546
	Inventory	.073	.016	.471	4.592	.010	.777	.917	.392	.693	1.444
	Accounts	-.046	.025	-.616	-	.141	-.836	-.675	-	.065	15.500
	Financial	-1.229	1,100	-.253	-	.326	-.884	-.488	-	.142	7.047
a. Dependent Variable: Profitability											

Collinearity Diagnostics [a]								
Model	Dimension	Eigenvalues	Condition Index	Variance Proportions				
				(Constant)	Accounts	Inventory	Accounts	Financial
1	1	4.988	1.000	.00	.00	.00	.00	.00
	2	.010	21.827	.00	.00	.28	.00	.01
	3	.001	64.837	.62	.02	.38	.03	.01
	4	.001	96.668	.12	.25	.34	.00	.55
	5	.000	177.343	.26	.73	.00	.96	.44
a. Dependent Variable: Profitability								

Residual Statistics [a]					
	The minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.8978	6.5381	4.9944	.83373	9
Residual	-.23480	.25217	.00000	.14458	9
Std. Predicted Value	-1.315	1.852	.000	1,000	9
Std. Residual	-1.148	1.233	.000	.707	9
a. Dependent Variable: Profitability					

Note: Author's calculation

Figure 3. Observed Cum Prob



Source: own research

So, in this particular case, the coefficient of determination is high at the level of statistical significance (Adjusted R Square .942; Sig. F Change .003). There is no autocorrelation in the regression model (Durbin-Watson 1.694, which is less than the allowed limit of 4). There is, however, a problem of multicollinearity in the regression model (VIF is greater than the allowed limits of 5, except for the variable Inventory turnover ratio). The regression equation reads:

$$Y = 7.691 + .051\ X_1 + .073\ X_2 - .046\ X_3 - 1.229\ X_4$$

It can be used for projection.

4.3. Effects of net working capital on trade profitability in Serbia

Net working capital is one of the significant profitability factors of the economy, sector and company. Bearing that in mind, in this paper we will use regression analysis to investigate the impact of net working capital on the profitability of trade in Serbia for the period 2013 - 2021. Let the regression equation be:

$$Y = a + b\ X + e$$

where: Y = profitability, X = net working capital, a and b = coefficients and e = random error.

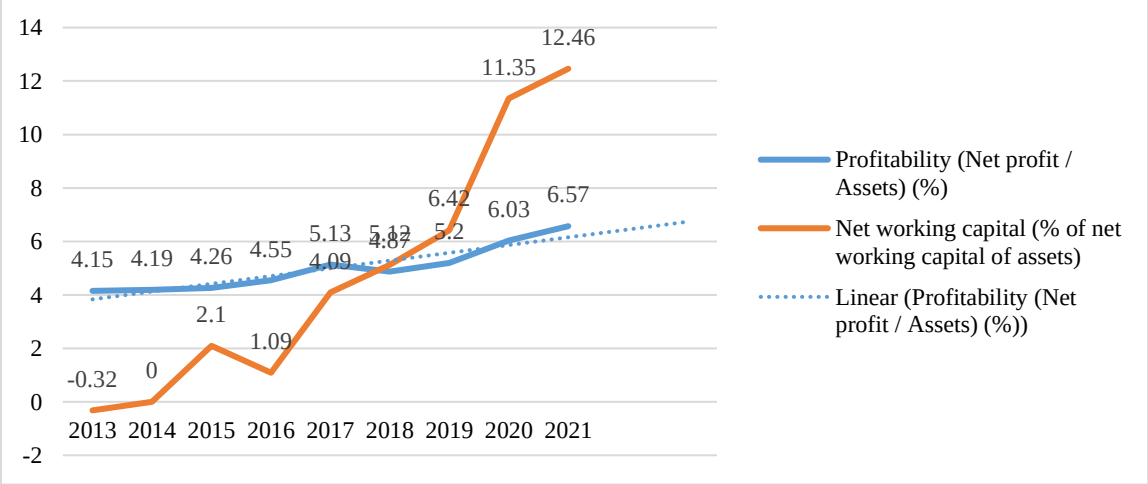
In ***Table 8*** and ***Figure 4*** shows the initial data for the regression analysis of the impact of net working capital on the profitability of trade in Serbia.

Table 8. Initial data

Year	Profitability (Net profit / Assets) (%)	Net working capital (% of net working capital of assets)
2013	4.15	-0.32
2014	4.19	0 .87
2015	4.26	2.10
2016	4.55	1.09
2017	5.13	4.09
2018	4.87	5.12
2019	5.20	6.42
2020	6.03	11.35
2021	6.57	12.46

Note: own research

Figure 4. Dynamics of profitability and net working capital of trade in Serbia



Source: own research

Table 9 shows the descriptive statistics of the initial data.

Table 9. Descriptive statistics

		Profitability	Net working capital
N	Valid	9	9
	Missing	0	0
Mean		4.9944	4.7978
Median		4.8700	4.0900
Std. Deviation		.84617	4.57606
The minimum		4.15	-.32
Maximum		6.57	12.46

Note: own research

In the period 2013 - 2021, the maximum profitability in Serbian trade was achieved in 2021, and the maximum percentage of net working capital from assets in 2021. In the winter, the profitability of trade in Serbia increased. The factors that influenced it were: favorable economic climate, foreign retail chains, application of new business models, new concepts of cost, income and profit management, customers, product categories, application of the concept of sustainable development, and digitalization of the entire business (Lukić, 2011, 2020, 2022b). ***Table 10*** shows the correlation matrix of the initial data.

Table 10. Correlations

		1	2
1 Profitability	Pearson Correlation	1	.974 **
	Sig. (2-tailed)		.000
	N	9	9
2 Net working capital	Pearson Correlation	.974 **	1
	Sig. (2-tailed)	.000	
	N	9	9

Note: **. Correlation is significant at the 0.01 level (2-tailed). Source: own research

So, in this particular case, there is a strong correlation between profitability and net working capital of trade in Serbia. This means, in other words, that the target profitability of trade in Serbia can be achieved through more efficient management of net working capital.

Table 11. Results of regression analysis

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the estimate	Change Statistics					Durbin-Watson
					R Square	F	df1	df2	Sig. F	
1	.974 [a]	.948	.941	.20569	.948	128.382	1	7	.000	2.040

a. Predictors: (Constant), Net working capital

b. Dependent Variable: Profitability

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.432	1	5.432	128.382	.000 [b]
	Residual	.296	7	.042		
	Total	5,728	8			

a. Dependent Variable: Profitability

b. Predictors: (Constant), Net working capital

Coefficients [a]

Model		Unstandardized		Standardized	t	Sig.	Correlations			Collinearity	
		B	Std.	Beta			Zero-	Partial	Part	Tolerance	VIF
1	(Constant)	4.131	.103		40.28	.000					
	Net	.180	.016	.974	11.33	.000	.974	.974	.974	1.000	1.000

a. Dependent Variable: Profitability

Collinearity Diagnostics [a]

Model	Dimension	Eigenvalues	Condition Index	Variance Proportions	
				(Constant)	Net working capital
1	1	1.744	1.000	.13	.13
	2	.256	2,608	.87	.87

a. Dependent Variable: Profitability

Residual Statistics [a]

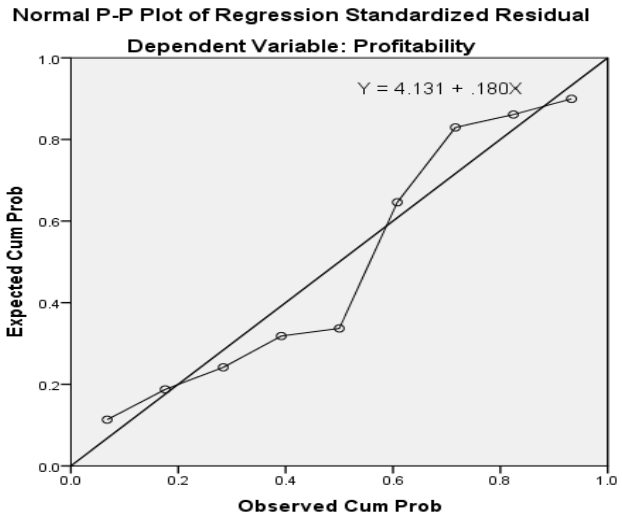
	The	Maximum	Mean	Std. Deviation	N
Predicted Value	4.0729	6.3742	4.9944	.82400	9
Residual	-.24866	.26300	.00000	.19241	9
Std. Predicted Value	-1.118	1,674	.000	1,000	9
Std. Residual	-1.209	1,279	.000	.935	9

a. Dependent Variable: Profitability

Note: own research

In ***Table 11*** and ***Figure 5*** shows the results of the regression analysis.

Figure 5. Observed Cum Prob



Source: own research

In this case, the coefficient of determination is high (Adjusted R Square .941; Sig. F Change .000). In the regression model, there is no autocorrelation (Durbin-Watson 2.040, which is less than 4) and multicollinearity problem (VIF. 1.000, which is less than 5). The influence of net working capital on the profitability of trade in Serbia is very significant (Sig. .000). This means, in other words, that more efficient management of net working capital can have a significant impact on the profitability of trade in Serbia.

The regression equation reads:

$$Y = 4.131 + .180\ X$$

It can be used for projection.

4.4. Net working capital of selected trading companies in Serbia

In order to analyze the issue of net working capital in the trade of Serbia as complex as possible, we will present the size of the net working capital of selected trading companies (**Table 12**). Their size of net working capital certainly differs depending on the category of products they trade with and policies and strategies for optimizing the size of net working capital. In the specific case, Delhaize Serbia and MOL Serbia have a significant amount of net working capital. The net working capital of trading companies LIDL Serbia and OMV Serbia is at a lower level compared to trading companies Delhaize Serbia and MOL Serbia. Trading company Nelt Co. has a negative net working capital, which means that it borrows too much from its suppliers. This is economically justified if the lending costs are lower than the banking interest rate.

Table 12. Net working capital of selective trading companies in Serbia

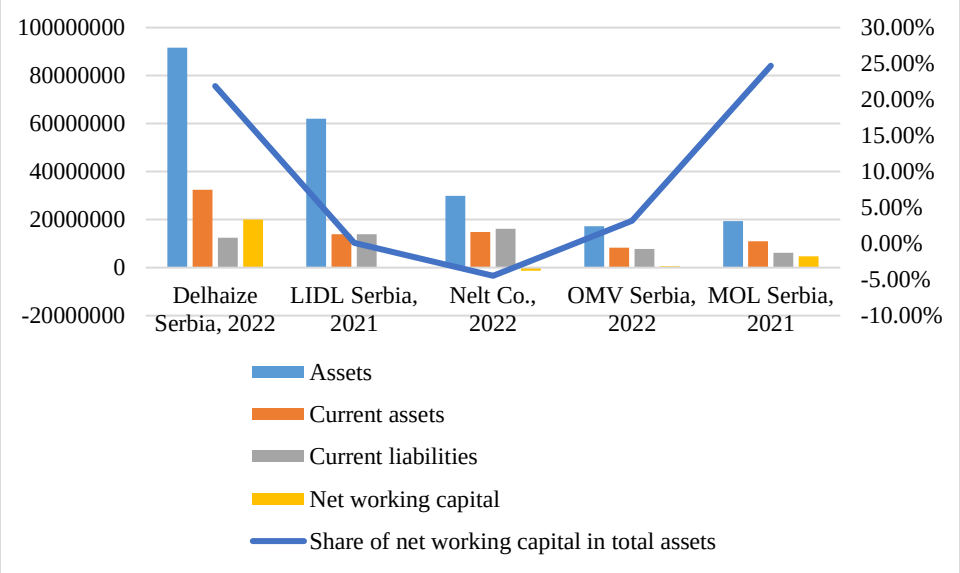
(thousands of dinars)

Entity	Assets	Current assets	Current liabilities	*Net working capital	*Share of net working capital in total assets
Delhaize Serbia, 2022	91578147	32444478	12402519	20041959	21.89%
LIDL Serbia, 2021	62073676	13975906	13921718	54188	0.09%
Nelt Co., 2022	29904729	14796504	16132330	-1335826	-4.47%
OMV Serbia, 2022	17261041	8339250	7787885	551365	3.19%
MOL Serbia, 2021	19346886	10961075	6181989	4779086	24.70%

Note: *Author's calculation

Source: Agency for Economic Registers of the Republic of Serbia

Figure 6. Net working capital of selected trading companies in Serbia



Source: own research

There are certain limitations in the research of the treated problem in this paper. They are reflected in the fact that there are no similar studies in Serbia for earlier time periods in order to dynamically compare the obtained results and see whether the impact of net working capital on profitability has increased or not compared to before. This is significant in order to see whether it is necessary and what measures to undertake in order to optimize the impact of net working capital on the profitability of trade in Serbia. It is also necessary to compare the obtained results with similar research in international frameworks. Based on this, an appropriate net working capital management strategy can be defined in order to achieve the target profitability of trade in Serbia.

It is recommended that, considering the importance, financial managers, owners, business policy makers continuously define a strategy for managing the flows of inflows (profit, accumulation, sale of fixed assets and long-term loans) and outflows (loss, purchase of fixed assets and repayment of long-term loans) of net working capital of trading companies in Serbia. Determining the optimal size of the net working capital of trading companies is important considering their nature of business - buying and selling of goods and services. It affects the liquidity, solvency, efficiency and profitability of trading companies. Likewise, it is recommended that the size of the net working capital of a given trading company be compared with other similar trading companies. The effects of this are positive.

5. Conclusion

Net working capital is generally defined as the difference between current assets and current liabilities. It shows which part of current assets is financed from long-term sources of funds. The larger the amount of net working capital, the better the liquidity and solvency. The size of net working capital differs by individual national economies (countries), sectors, and companies. In trade, due to the high share of working capital in total assets, the size of net working capital is a significant determinant of business and financial performance, i.e., liquidity, solvency, efficiency and profitability. With this in mind, it is necessary for financial managers, company owners, business policy makers to define a strategy for optimizing the size of net working capital.

Based on the empirical analysis of the impact of net working capital on the profitability of trade in Serbia using a linear regression model, the following can be concluded: In the period 2013 - 2021, the maximum amount of net working capital was achieved in the trade of Serbia in 2021, the maximum percentage of net working capital from assets in 2021 and the maximum percentage of net working capital from sales in 2021. In the same period, in the trade of Serbia, maximum profitability was achieved in 2021.

In the specific case, there is a strong correlation between profitability and net working capital of trade in Serbia. The coefficient of determination is high (Adjusted R Square .941; Sig. F Change .000). The influence of net working capital on the profitability of trade in Serbia is statistically significant (Sig. .000). This means, in other words, that more efficient management of net working capital can have a significant impact on the profitability of trade in Serbia.

The size of the net working capital of trade in Serbia has increased recently. This had a positive impact on its liquidity, solvency, efficiency and profitability. Likewise, the profitability of trade in Serbia has increased. The factors that influenced it were: favourable economic climate, foreign retail chains, implementation of new business models, new concepts of cost, income and profit management, customers, product categories, implementation of the concept of sustainable development, and digitalization of the entire business. The strategy of optimizing the size of net working capital also plays a significant role. It certainly differs from one trading company to another. However, regardless of that, the amount of net working capital should be such that it positively affects the liquidity, solvency, efficiency and profitability of trading companies.

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