DUPONT INDICATOR SYSTEM AS A SUPPORT IN THE MANAGEMENT OF LOGISTICS COMPANIES

Ivana Martinčević

University North, Croatia E-mail: <u>ivana.martincevic@unin.hr</u>

Vesna Sesar University North, Croatia E-mail: <u>vesna.sesar@unin.hr</u>

Mario Sertić University North, Croatia E-mail: <u>msertic@unin.hr</u>

> Received: July 13, 2022 Received revised: September 13, 2022 Accepted for publishing: September 14, 2022

Abstract

Timely, quality, reliable and accurate information is key for making business decisions. For managers to have access to the information necessary for management, they seek support in accounting. The accounting system is the starting point and bloodstream of every company for quality management and business decision-making. Several techniques and analyses arise from accounting to support company management. One of the methods and analyses, i.e. the management tool for providing information on the profitability of the business is Dupont analysis. This paper aims to examine the profitability of selected logistics companies using the DuPont indicator system and to determine the efficient and effective use of its assets. The DuPont analysis indicates to managers which form of assets to pay attention to when managing, which is a great challenge, especially for logistics companies today, so they can operate undisturbed in conditions of the rapid growth of globalization and degree of competitiveness.

Key words: DuPont system indicators, DuPont analysis, financial indicators, logistics business, logistics

1. INTRODUCTION

Given the increase in globalization and internationalization of business, along with constant growth and development of new technologies, new business conditions are created. Managers are faced with the task, but also the challenge, to monitor and control their business by applying various methods so that ultimately the management of the company is successful, competitive, and sustainable. This is provided by accounting which enables and facilitates managers to make business decisions. A series of analyzes and techniques as part of the accounting system provides key information and financial data that is impossible to manage.

One of the methods and analyses, that is a management tool for ensuring information about business rentability and profitability is the Dupont analysis. The paper aims to represent the application of the mentioned tool to selected logistics companies. The DuPont system of indicators indicates to managers, which forms of the asset they should pay attention to. The Dupont system of indicators includes two basic financial reports, the profit and loss account, and the balance sheet. It represents one of the financial analyzes that provide insight into current business results as well as business development over a certain period. Based on the previously defined problem and research aim, two research hypotheses were defined; H1: By applying the DuPont analysis to selected logistics companies, it is possible to determine the business profitability, and H2: By applying the DuPont analysis to selected logistics companies, it is possible to determine the efficient and effective use of assets and capital in the selected period.

2. BUSINESS LOGISTIC

As a science, business logistics represents an economic discipline that includes part of management science, based on the study of flows and transformations of economic content within the company. The meaning of logistics in business is characterized by a constant trend of growing importance, which makes it one of the most important business activities. Marketing determines what should be sold and produced, production determines investments, and logistics ensures the availability of production goods and information in the right quantities, the required quality, and at the right time and in the right place (Segetlija, Lamza-Maronić, 1995). The goal of business logistics is to connect the place of goods source as efficiently as possible with the point of their delivery to consumers. Those tasks imply that the receipt point is supplied from the point of delivery, with the right product in the right condition, at the right time, in the right place, and all this has to be organized with minimal costs. The purpose of logistics is to constantly improve the flow of goods and information through the company. The following goals can be set such as reducing stocks, shortening the time of these flows, shortening the reaction time (eg to customer orders, etc.), etc., (Segetlija & Lamza-Maronić, 1995).

3. DUPONT ANALYSIS

The DuPont system of indicators is the most famous deductive system of indicators. It was named after the American chemical company DuPont de Nemours & Co and was developed in the nineties of the last century. The model was developed to give company managers the ability to evaluate performance in terms of return on investment (ROI). This model has remained until today and represents an important

management tool that indicates to managers which form of assets should be paid attention to during management (Vidučić, 2002).

The system has the shape of a pyramid consisting of a left and a right side. The left side is calculated based on the data and information found in the profit and loss account (P&L), and the right side is based on the data and information found in the assets of the balance sheet. The top indicator is the return on assets (ROA), that is, the profitability of the total assets, which reflects the basic goal of the business. From ROA requirements are derived, that need to be met at lower levels of business operations. In addition to ROA, the return on equity (ROE) is also often included in this analysis, which provides information on the return of invested capital per unit (Sesar, et al. 2015).

ROA or return on assets is an indicator of the company's success in using assets to make a profit. It refers to the profit that the company generates from one unit of invested assets and puts the total capital and realized profit into a relationship. At the same time, it talks about the intensity of the asset. The lower the profit per unit of invested assets is, then the higher the degree of asset intensity is reached. Higher asset intensity requires more money to be invested in the business to continue to make a profit. A lower indicator shows sales stagnation and lowers earning power. The value of ROA varies depending on the industry where the company operates (Renko, 2005). ROE or return on equity shows us how many monetary units of profit the company achieves based on the one unit of equity invested by comparing equity and profit after taxation (Vidučić et al., 2015).

Those companies that have high-profit margins and lower total asset turnover ratios apply a differentiation strategy, while companies that achieve low-profit margins with high asset turnovers apply a low-cost strategy (Turić, 2018). The low-cost strategy is used by companies that maintain competitiveness by lowering the prices of their products or services lower than competing companies. The products offered by these companies are simple and standard. In this case, the company will have a large volume of production and sales, which will result in a high turnover ratio of total assets (Renko, 2005). The differentiation strategy is used by companies whose business is focused on the production of more creative and innovative products or services. Differentiation can be related to service quality, product specificity, company image, and the like. This strategy is based on higher product quality, and therefore on a higher market price, and by applying it, the company can achieve a higher profit margin than the competition (Renko, 2005).

4. DUPONT ANALYSIS OF THE SELECTED COMPANIES IN LOGISTICS

Through this chapter, a DuPont analysis was applied to three selected logistics companies from the area of Koprivnica - Križevačka County: company "A", company "B" and company "C". The analysis was conducted for the period 2018-2020. Companies were selected based on the business activity that is the NKD classification (road transport) and company size (selected companies are registrated as small companies). The data used in the calculation were collected from the database Poslovna Hrvatska (Poslovna. hr).

4.1. Analysis of business operations by the use of DuPont system of indicators – company "A"

Company "A" is a registered trade company for road transport in Koprivnica-Križevac County, which has been operating since 2005. According to data from Poslovna. hr, the business has a credit rating of A2 and employs 14 people of which 12 are drivers. The calculation of DuPont implies the calculation of return on assets (ROA) and return on equity (ROE).

Table 1 provides basic data from the balance sheet and profit and loss (P&L) statement that are important for calculating the profit margin and equity multiplier for company ,A" (Sertić, 2021).

Table	1.	Abbrev	viated	Balance	Sheet	and	Profit	and	Loss	(P&L)	Statement	for	the
compar	ny	"A" (ir	n Croa	tian kuna	ı - HRI	K)							

BALANCE SHEET									
YEAR 2018. 2019. 2020.									
ASSETS									
B) LONG-TERM ASSETS	1.341.000.00	1.706.000.00	580.600.00						
C) SHORT-TERM ASSETS	3.565.500.00	5.809.600.00	6.643.200.00						
LIABILITIES									
A) EQUITY and RESERVE	785.100.00	1.657.300.00	2.587.700.00						
C) LONG-TERM	1.427.000.00	2.918.800.00	2.917.400.00						
LIABILITIES									
D) SHORT-TERM	2.694.300.00	2.939.500.00	1.718.700.00						
LIABILITIES									
TOTAL ASSETS	4.906.500.00	7.515.600.00	7.223.800.00						
TOTAL LIABILITIES	4.121.300.00	5.858.300.00	4.636.100.00						
PROFIT AND	PROFIT AND LOSS (P&L) STATEMENT								
YEAR	2018.	2019.	2020.						
L OPERATING REVENUES	5 612 200 00	8 526 700 00	7 352 700 00						
I. OI LIMITING KEVENUED	3.012.300.00	0.520.100.00	7.332.700.00						
II. OPERATING EXPENSES	4.805.900.00	7.309.900.00	6.184.700.00						
II. OPERATING EXPENSES III. NON-OPERATING	3.812.300.00 4.805.900.00 46.100.00	7.309.900.00 105.400.00	<u>6.184.700.00</u> 133.600.00						
II. OPERATING EXPENSES III. NON-OPERATING REVENUES	<u>4.805.900.00</u> 46.100.00	7.309.900.00 105.400.00	6.184.700.00 133.600.00						
II. OPERATING REVENUESIII.NON-OPERATINGREVENUESIV.IV.NON-OPERATING	3.812.300.00 4.805.900.00 46.100.00 155.700.00	7.309.900.00 105.400.00 223.100.00	6.184.700.00 133.600.00 222.900.00						
II. OPERATING REVENCES III. NON-OPERATING REVENUES IV. NON-OPERATING EXPENSES	3.812.300.00 4.805.900.00 46.100.00 155.700.00	7.309.900.00 105.400.00 223.100.00	6.184.700.00 133.600.00 222.900.00						
II. OPERATING EXPENSES III. NON-OPERATING REVENUES IV. NON-OPERATING EXPENSES IX. TOTAL INCOME	3.812.300.00 4.805.900.00 46.100.00 155.700.00 5.658.400.00	7.309.900.00 105.400.00 223.100.00 8.632.100.00	6.184.700.00 133.600.00 222.900.00 7.486.300.00						
II. OPERATING EXPENSES III. NON-OPERATING REVENUES IV. NON-OPERATING EXPENSES IX. TOTAL INCOME X. TOTAL EXPENSES	3.812.300.00 4.805.900.00 46.100.00 155.700.00 5.658.400.00 4.961.600.00	7.309.900.00 105.400.00 223.100.00 8.632.100.00 7.533.000.00	1.332.700.00 6.184.700.00 133.600.00 222.900.00 7.486.300.00 6.407.600.00						
II. OPERATING EXPENSES III. NON-OPERATING REVENUES IV. NON-OPERATING EXPENSES IX. TOTAL INCOME X. TOTAL EXPENSES XI. GROSS PROFIT OR LOSS	3.812.300.00 4.805.900.00 46.100.00 155.700.00 5.658.400.00 4.961.600.00 696.600.00	7.309.900.00 105.400.00 223.100.00 8.632.100.00 7.533.000.00 1.099.100.00	1.332.700.00 6.184.700.00 133.600.00 222.900.00 7.486.300.00 6.407.600.00 1.078.600.00						
II. OPERATING EXPENSES III. NON-OPERATING REVENUES IV. NON-OPERATING EXPENSES IX. TOTAL INCOME X. TOTAL EXPENSES XI. GROSS PROFIT OR LOSS BEFORE TAX	3.812.300.00 4.805.900.00 46.100.00 155.700.00 5.658.400.00 4.961.600.00 696.600.00	7.309.900.00 105.400.00 223.100.00 8.632.100.00 7.533.000.00 1.099.100.00	1.332.700.00 6.184.700.00 133.600.00 222.900.00 7.486.300.00 6.407.600.00 1.078.600.00						
II. OPERATING EXPENSES III. NON-OPERATING REVENUES IV. NON-OPERATING EXPENSES IX. TOTAL INCOME X. TOTAL EXPENSES XI. GROSS PROFIT OR LOSS BEFORE TAX XII. PROFIT TAX	3.812.300.00 4.805.900.00 46.100.00 155.700.00 5.658.400.00 4.961.600.00 696.600.00 147.400.00	7.309.900.00 105.400.00 223.100.00 8.632.100.00 7.533.000.00 1.099.100.00 226.900.00	7.332.700.00 6.184.700.00 133.600.00 222.900.00 7.486.300.00 6.407.600.00 1.078.600.00 148.200.00						
II. OPERATING EXPENSES III. NON-OPERATING REVENUES IV. NON-OPERATING EXPENSES IX. TOTAL INCOME X. TOTAL EXPENSES XI. GROSS PROFIT OR LOSS BEFORE TAX XII. PROFIT TAX XIII. NET PROFIT OR NET	3.812.300.00 4.805.900.00 46.100.00 155.700.00 5.658.400.00 4.961.600.00 696.600.00 147.400.00 549.500.00	7.309.900.00 105.400.00 223.100.00 8.632.100.00 7.533.000.00 1.099.100.00 226.900.00 872.200.00	1.332.100.00 6.184.700.00 133.600.00 222.900.00 7.486.300.00 6.407.600.00 1.078.600.00 148.200.00 930.500.00						

Source: Processed by the author according to Sertić 2021.

In table 2, the profit margin for company "A" is calculated using net profit and operating revenue, which, along with the equity multiplier, is required for calculating the return on assets. The company's profit margin increases gradually until 2020 compared to previous years by 2.87 percentage points. The increase in profit margin is the increase in net profit. In 2019. the profit margin increased by 0.44 percentage points.

	2018.	2019.	2020.	
NET PROFIT	549.500.00	872.200.00	930.500.00	
OPERATING REVENUE	5.612.300.00	8.526.700.00	7.352.700.00	
PROFIT MARGIN	9.79%	10.23%	12.66%	

Table 2. Profit margin (in Croatian kuna) for company "A"

Source: Processed by the author according to Sertić 2021

Table 3 shows the calculation of the indicator of the assets turnover ratio for company "A" which compares operating revenue and total assets. The total assets turnover ratio shows how successfully the company uses total assets to generate revenue, i.e. how many times total assets are turned over during one year. It is positive that this indicator is greater than 1, and it is desirable to be as high as possible. In 2019, the value of the indicator is slightly lower compared to the previous year and amounts to 1.13. this means that 1 Croatian kuna of invested assets generates 1.13 Croatian kuna of revenue. This means that during 2019 the property turned over 1.13 times. In 2020, the total asset turnover ratio drops to 1.02, which means that the company is still using its assets efficiently but less than the year before. The decrease in the coefficient is due to a decrease in financial revenue and revenue from sales. The calculation shows that company "A" uses its assets most efficiently in 2018 (Sertić, 2021).

	2018.	2019.	2020.
OPERATING REVENUE	5.612.300.00	8.526.700.00	7.352.700.00
TOTAL ASSETS	4.906.500.00	7.515.600.00	7.223.800.00
ASSETS TURNOVER RATIO	1.14	1.13	1.02

Table 3. Assets turnover ratio (in Croatian kuna) for company "A"

Source: Processed by the authors according to Sertić 2021.

The following table 4 shows the return on assets (ROA) for company "A" which is calculated by multiplying the profit margin and the turnover ratio of total assets. It can be seen that throughout the years the company uses the return on assets consistently it controls costs well and has higher revenues. In 2020 company "A" recorded the highest return on assets compared to previous years and recorded a growth of 1.75 percentage points (Sertić, 2021)

	2018.	2019.	2020.
PROFIT MARGIN	9.79%	10.23%	12.66%
TURNOVER RATIO OF TOTAL ASSETS	1.14	1.13	1.02
ROA	11.16%	11.56%	12.91%

Table 4. Calculation of return on assets (ROA) for company "A"

Source: Processed by the authors according to Sertić 2021.

Table 5 shows the calculation of the equity multiplier, which is obtained by putting the total assets and capital into a relationship, as well as a brief analysis of the obtained indicators. In 2020., the equity multiplier is the lowest, which shows that company used financial leverage the least. A value of 2.79 indicates that a company with 100 Croatian kunas of assets finances 36 Croatian kunas from its sources. The highest value of the equity multiplier, in the observed period, was in 2018. In 2018. the company uses financial leverage the most, and the value of 6.25 indicates that the company borrows more, is financed from debt sources compared to the previous year, and is now equally financed from its own and other sources. Out of 100 Croatian kunas of assets, the company finances 16 Croatian kunas from its sources (Sertić, 2021).

Tuble et Calculation of the manipher (in Croatian Runa) for Company Tr							
	2018.	2019.	2020.				
TOTAL ASSETS	4.906.500.00	7.515.600.00	7.223.800.00				
EQUITY	785.100.00	1.657.300.00	2.587.700.00				
EOUITY MULTIPLIER	6.25	4.53	2.79				

Table 5. Calculation of the multiplier (in Croatian kuna) for company "A"

Source: Processed by the authors according to Sertić 2021.

The following is the calculation of the return on equity, which is calculated as the product of the profit margin, the turnover ratio of total assets, and the equity multiplier, and which indicates the ability to achieve net profit using own capital shown in table 6 (Sertić, 2021). The value of ROE should be as high as possible. Table 6 shows that in the observed period the company achieved the highest ROE in 2018. After 2018, the ROE decreased, and it indicates that the company realizes added value for the owners, but at a smaller value (Sertić, 2021).

Table 6.	Return on	Equity	(ROE)	for com	pany "A"
----------	-----------	--------	-------	---------	----------

	2018.	2019.	2020.
PROFIT MARGIN	9.79%	10.23%	12.66%
TOTAL ASSETS TURNOVER RATIO	1.14	1.13	1.02
EQUITY MULTIPLIER	6.25	4.53	2.79
ROE	69.75%	52.37%	36.03%

Source: Processed by the authors according to Sertić 2021.

Through the data presented, we can conclude that company "A" is achieving a positive trend and good indicators in the observed period.

4.2. Analysis of business operations by the use of DuPont system of indicators – company "B"

Transport company "B" is a registered trade for road transport in Koprivnica-Križevac County, which has been operating since 1991. According to data from Poslovna. hr, the business has a credit rating of A2 and employs 7 people, all of whom are drivers. Table 7 provides basic data from the balance sheet and profit and loss statement that are important for calculating the profit margin and equity multiplier for company "B" (Sertić, 2021).

Table 7.	Abbreviated	Balance	Sheet	and	Profit	and	Loss	(P&L)	Statement	for	the
company	"B" (in Croa	tian kuna	ι)								

BALANCE SHEET							
YEAR	2018.	2019.	2020.				
ASSETS							
B) LONG-TERM ASSETS	1.455.200.00	2.288.100.00	2.330.900.00				
C) SHORT-TERM ASSETS	1.628.800.00	1.093.500.00	1.557.700.00				
LIABILITIES							
A) EQUITY and RESERVE	2.356.300.00	2.587.100.00	3.241.200.00				
C) LONG-TERM LIABILITIES	353.900.00	361.700.00	72.600.00				
D) SHORT-TERM LIABILITIES	373.800.00	433.400.00	574.800.00				
TOTAL ASSETS	3.084.000.00	3.381.600.00	3.888.600.00				
TOTAL LIABILITIES	727.700.00	795.100.00	647.400.00				
PROFIT AND LOSS (P&L) STATEMENT							
YEAR	2018.	2019.	2020.				
I. OPERATING REVENUES	3.957.000.00	4.213.400.00	6.651.600.00				
II. OPERATING EXPENSES	3.654.000.00	3.922.800.00	5.622.700.00				
III. NON-OPERATING	1.700.00	5.200.00	1.000.00				
REVENUES							
IV. NON-OPERATING	20.500.00	10.800.00	9.500.00				
EXPENSES							
IX. TOTAL INCOME	3.958.700.00	4.218.700.00	6.652.600.00				
X. TOTAL EXPENSES	3.674.600.00	3.933.700.00	5.634.400.00				
XI. GROSS PROFIT OR LOSS	284.200.00	285.000.00	1.018.200.00				
BEFORE TAX							
XII. PROFIT TAX	55.200.00	54.300.00	124.000.00				
XIII. NET PROFIT OR NET	229.000.00	230.700.00	894.100.00				
LOSS							

Source: Processed by the authors according to Sertić 2021.

In table 8. the profit margin for company "B" is calculated using net profit and operating revenue, which, along with the equity multiplier, is required for calculating the return on assets. The company's profit margin increases gradually until 2020 compared to previous years. The increase in profit margin is the increase in net profit.

In 2019 the profit margin decreased by 0.31 percentage points, but then it increased significantly by 7.96 percentage points (Sertić, 2021).

	2018.	2019.	2020.
NET PROFIT	229.000.00	230.700.00	894.100.00
OPERATING REVENUE	3.957.000.00	4.213.400.00	6.651.600.00
PROFIT MARGIN	5.79%	5.48%	13.44%

Table 8. The profit margin for company "B" (in Croatian kuna)

Source: Processed by the authors according to Sertić 2021.

Table 9 shows the calculation of the indicator of the assets turnover ratio for company "B", which compares operating revenue and total assets. In 2018 the value of the indicator is 1.28, that is, for 1 Croatian kuna (HRK) of invested assets, 1.28 (Croatian kuna) of revenue is realized. In 2019 the value of the indicator drops slightly compared to the previous year and amounts to 1.25 (Croatian kuna) (for 1 Croatian kuna of invested assets, it realizes 1.25 HRK of revenue). This means that during 2019 the assets turned over 1.25 times. In 2020 the total assets turnover ratio increases to 1.71 which means that the company continues to use its assets efficiently. The calculation shows that the company uses its assets most efficiently in 2020. (Sertić, 2021).

Table 9. Assets turnover ratio	o for compa	any "B" (in	Croatian kuna)
--------------------------------	-------------	-------------	----------------

	2018.	2019.	2020.
OPERATING REVENUE	3.957.000.00	4.213.400.00	6.651.600.00
TOTAL ASSESTS	3.084.000.00	3.381.600.00	3.888.600.00
ASSETS TURNOVER RATIO	1.28	1.25	1.71

Source: Processed by the authors according to Sertić 2021.

Table 10. presents the return on total assets (ROA) for company "B" which is calculated by multiplying the profit margin and the turnover ratio of total assets. It can be seen that throughout the years the company uses the return on assets evenly, controls cost well, and has higher revenues. In 2020. company "B" recorded the highest return on assets compared to previous years and recorded a growth of 16.13 percentage points. From what is shown, it can be seen that the ROA indicator is in a slight decline in the first two years, and 2020. experiences a jump. This means that the company's income has increased and that costs are well managed (Sertić, 2021).

Table 10. Calculation of return on assets for company "B" (ROA)

	2018.	2019.	2020.
PROFIT MARGIN	5.79%	5.48%	13.44%
TURNOVER RATIO OF TOTAL ASSETS	1.28	1.25	1.71
ROA	7.41%	6.85%	22.98%

Source: Processed by the authors according to Sertić 2021.

Table 11 shows the calculation of the equity multiplier, which is obtained as a relationship between total assets and equity, as well as a brief analysis of the obtained indicators (Sertić, 2021). In 2020., the equity multiplier is the lowest, which shows that company used financial leverage the least. A value of 1.20 indicates that a company with 100 Croatian kunas of assets finances 83 Croatian kunas from its sources. The highest value of the equity multiplier, in the observed period, was in 2018. and 2019. These are the years in which the company uses financial leverage the most, and the value of 1.31 indicates that the company borrows more and is financed from debt sources. From 100 HRK of assets, company "B" finance 76 HRK from its sources (Sertić, 2021).

	2018.	2019.	2020.
TOTAL ASSETS	3.084.000.00	3.381.600.00	3.888.600.00
EQUITY	2.356.300.00	2.587.100.00	3.241.20.00
EQUITY MULTIPLIER	1.31	1.31	1.20

Table 11. Calculation of the multiplier for company "B" (in Croatian kuna)

Source: Processed by the authors according to Sertić 2021.

Table 12 presents the calculation of the return on equity for company "B", which is calculated as the product of the profit margin, the turnover ratio of total assets, and the equity multiplier, and which indicates the ability to achieve net profit using own equity (Sertić, 2021). Table 12 shows that in the observed period the company achieved the highest ROE in 2020. In 2018 ROE is 9.71% and has a slight decline in 2019. which means that the company successfully disposes of equity, which is proven by the increase in ROE in 2020 (Serté, 2021).

Table 12. Return on Equity (ROE)

	2018.	2019.	2020.
PROFIT MARGIN	5.79%	5.48%	13.44%
TOTAL ASSETS TURNOVER RATIO	1.28	1.25	1.71
EQUITY MULTIPLIER	1.31	1.31	1.20
ROE	9.71%	9.0%	27.58%

Source: Processed by the authors according to Sertić 2021.

Through the data presented, we can conclude that company "B" is achieving a positive trend and good indicators in the observed period, but lower than company "A".

4.3. Analysis of business operations by the use of DuPont system of indicators – company "C"

Transport company "C" is a registered road transport company in Koprivnica-Križevac County, which has been operating since 1995. According to data from Poslovna. hr, the business has a credit rating of C2 and employs 13 people, 12 of whom are drivers. Table 13 shows the data for calculating the profit margin, which, along with the equity multiplier, is needed to calculate the return on assets using the abbreviated balance sheet and profit and loss statement for company "C".

Table 13.	Abbreviated	Balance She	et and I	Profit	and Loss	(P&L)	Statement	for	the
company '	'C" (in Croati	an kuna)							

BALANCE SHEET						
YEAR	2018.	2019.	2020.			
ASSETS	•	•	•			
B) LONG-TERM ASSETS	1.968.200.00	1.947.400.00	1.351.100.00			
C) SHORT-TERM ASSETS	2.838.000.00	3.114.200.00	3.441.300.00			
LIABILITIES						
A) EQUITY and RESERVE	1.933.300.00	2.148.500.00	2.435.600.00			
C) LONG-TERM LIABILITIES	1.833.200.00	1.916.300.00	1.421.000.00			
D) SHORT-TERM LIABILITIES	1.053.900.00	1.011.000.00	950.100.00			
TOTAL ASSETS	4.820.500.00	5.075.800.00	4.806.700.00			
TOTAL LIABILITIES	2.887.100.00	2.927.300.00	2.371.100.00			
PROFIT AND I	LOSS (P&L) ST.	ATEMENT	•			
YEAR	2018.	2019.	2020.			
I. OPERATING REVENUES	4.345.600.00	5.196.700.00	5.554.900.00			
II. OPERATING EXPENSES	4.097.000.00	4.985.200.00	5.249.700.00			
III. NON-OPERATING	46.700.00	201.200.00	122.900.00			
REVENUES						
IV. NON-OPERATING	35.500.00	76.600.00	47.200.00			
EXPENSES						
IX. TOTAL INCOME	4.392.300.00	5.397.800.00	5.677.800.00			
X. TOTAL EXPENSES	4.132.500.00	5.061.800.00	5.297.000.00			
XI. GROSS PROFIT OR LOSS	259.800.00	336.000.00	380.900.00			
BEFORE TAX						
XII. PROFIT TAX	61.800.00	77.100.00	51.800.00			
XIII. NET PROFIT OR NET	198.000.00	258.900.00	329.100.00			
LOSS						

Source: Processed by the authors according to Sertić 2021.

The following table 14 shows the calculation of the profit margin for company "C" which along with the equity multiplier, is required for calculating the return on assets. The company's profit margin increases gradually until 2020 compared to previous years by 1.36 percentage points. The reason for the increase in profit margin is the increase in net profit. In 2019 the profit margin increased by 0.43 percentage points (Sertić, 2021).

(in crownan name)					
	2018.	2019.	2020.		
NET PROFIT	198.000.00	258.900.00	329.100.00		
OPERATING REVENUE	4.345.600.00	5.196.700.00	5.554.900.00		
PROFIT MARGIN	4.56%	4.99%	5.92%		

Table 14. The profit margin for company "C" (in Croatian kuna)

Source: Processed by the authors according to Sertić 2021.

Table 15. shows the calculation of the indicator of the assets turnover ratio for company "C" which compares operating revenue and total assets. (Sertić, 2021). In 2019, the value of the indicator is higher compared to the previous year and amounts to 1.02, i.e. that 1 HRK of invested assets generates 1.02 HRK of revenue. This means that during 2019., the assets turned over 1.02 times. In 2020, the turnover ratio of total assets increases to 1.16, which means that the company continues to use its assets efficiently. In 2018., the coefficient is less than 1 and is 0.9, which means that the company does not use its total assets well to generate revenue, and the decrease in the coefficient in 2018 is due to a decrease in financial revenue and revenue from sales. The calculation shows that the company uses its assets most efficiently in 2020 (Sertić, 2021).

	2018.	2019.	2020.
OPERATING REVENUE	4.345.600.00	5.196.700.00	5.554.900.00
TOTAL ASSESTS	4.820.500.00	5.075.800.00	4.806.700.00
ASSETS TURNOVER RATIO	0.9	1.02	1.16

Table 15. Assets turnover ratio for company "C" (in Croatian kuna)

Source: Processed by the authors according to Sertić 2021.

Table 16 shows the return on total assets (ROA) for company "C" which is obtained as a product of the profit margin and the turnover ratio of total assets. It can be seen that throughout the years the company uses the return on assets consistently that it controls costs well and has higher incomes. In 2020, it recorded the highest return on assets compared to previous years and recorded a growth of 2.8 percentage points. From what is shown, it can be seen that the ROA indicator is growing slightly, which means that the company's income is gradually growing and that costs are well managed (Sertić, 2021).

Table 16.	Calculation	of return	of assets	for company	/ "C" ((ROA)	
-----------	-------------	-----------	-----------	-------------	---------	-------	--

	2018.	2019.	2020.
PROFIT MARGIN	4.56%	4.99%	5.92%
TURNOVER RATIO OF TOTAL ASSETS	0.9	1.02	1.16
ROA	4.1%	5.1%	6.9%

Source: Processed by the authors according to Sertić 2021.

Table 17 shows the calculation of the equity multiplier, which is obtained by putting the total assets and equity in relation, and brief analysis of the obtained indicators. In 2020, the equity multiplier is the lowest, which shows that in 2020 the

company uses financial leverage the least. A value of 1.97 indicates that a company with 100 kunas of assets finances 51 kunas from its sources. The highest value of the equity multiplier in the observed period is in 2018. In 2018., the company uses financial leverage the most, and the value of 2.49 indicates that the company borrows more and is financed from debt sources compared to 2020 and is now equally financed from its own and other sources. Out of 100 HRK of assets, the company finances 40 HRK from its sources (Sertić, 2021).

	2018.	2019.	2020.
TOTAL ASSETS	4.820.500.00	5.075.800.00	4.806.700.00
EQUITY	1.933.300.00	2.148.500.00	2.435.600.00
EQUITY MULTIPLIER	2.49	2.36	1.97

Table 17. Calculation	of the multiplier	for company "C" ((in Croatian kuna)
-----------------------	-------------------	-------------------	--------------------

Source: Processed by the authors according to Sertić 2021.

Table 18 shows the calculation of the return on equity (ROE) for company "C" which is calculated as the product of the profit margin, the turnover ratio of total assets, and the equity multiplier, and which indicates the ability to achieve net profit using own capital (Seretić, 2021). It is evident from the table that in the observed period the company achieves the highest return on equity in 2020. In 2018 the amount of ROE is 10.21% and has a slight increase in 2019. which means that the company successfully disposes of equity, which is proven by the increase in ROE in 2020. (Sertić, 2021).

	2018	2019	2020	
PROFIT MARGIN	4.56%	4.99%	5.92%	
TOTAL ASSETS TURNOVER RATIO	0.9	1.02	1.16	
EQUITY MULTIPLIER	2.49	2.36	1.97	
ROE	10.21%	12.01%	13.52%	

Table 18. Return on Equity for company "C" (ROE)

Source: Processed by the authors according to Sertić 2021.

Through the data presented, we can conclude that company "C" is achieving a positive trend and good indicators in the observed period, but also lower than company "A".

5. COMPARISON OF DATA OF SELECTED LOGISTICS COMPANIES USING DUPONT ANALYSIS

For managers to be able to reliably and successfully manage companies, in this case, logistics companies, DuPont analysis is one of the most important analyzes in providing key information for quality management of the company, but it also provides and insures information on how to achieve higher return with lower risk. The DuPont system of indicators on selected logistics companies shows whether the

selected companies operate and profitably and whether they use their assets efficiently and effectively. Without key and timely information, the company cannot be managed well. For this reason, companies need to choose tools and analyzes that will help them in their management and at the same time provide them with key information necessary for survival in the market. The data provided by DuPont analysis are the basis for management in managing a company and making business decisions. It is necessary to use the analysis, including the DuPont analysis, continuously so that its purpose, which is to provide management with key data for managing a company fulfills its function. Only continuous and timely use of tools, in this case, DuPont analysis can have effects and benefit for company management.

After the conducted analysis, it is necessary to present the trend of the selected companies in the period from 2018 to 2020. Table 19 shows DuPont indicators for the observed period of 2018, 2019, and 2020 for selected companies.

COMPANY /YEAR	A 2018	B 2018	C 2018	A 2019	B 2019	C 2019	A 2020	B 2020	C 2020
PROFIT MARGIN (%)	9,79	5,79	4,56	10,23	5,48	4,99	12,66	13,44	5,92
TURNOVE R OF TOTAL ASSETS	1,14	1,28	0,9	1,13	1,25	1,02	1,02	1,71	1,16
ROA (%)	11,16	7,41	4,10	11,56	6,85	5,09	12,91	22,98	6,87
EQUITY MULTIPLI ER	6,25	1,31	2,49	4,53	1,31	2,36	2,79	1,20	1,97
ROE (%)	69,7	9,7	10,21	52,37	9,0	12,01	36,03	27,58	13,52

 Table 19. Comparation of DuPont analysis data of selected logistics companies for 2018/2019/2020.

Source: Processed by the authors according to Sertić 2021.

The analysis shows that in all three observed years, company "A" has the highest ROA, which shows that the company makes a revenue with its assets, but also has a higher intensity of assets, while in 2020, company "B" records a significant increase in ROA. Also, company "A" recorded the highest profit margin during the observed period (best controls its costs), while company "B" recorded a significant increase in profit margin in 2020. Company "A" has the highest equity multiplier, which means that it uses financial leverage the most, that is, it borrows and finances from debt sources, and to a lesser extent from its funds, and because of this, there is a higher return on equity in other companies. The highest return on equity (ROE) is again achieved by company "A", while the best turnover of total assets is achieved by company "B".

Based on all the data presented, it can be concluded that all companies operate successfully, that they have to further improve the utilization of their assets and that further net profit can be expected through the use of their capital in future operations as well.

6. DISCUSSION AND RECOMMENDATIONS

The DuPont system of indicators is a very useful and powerful tool and is applicable in many industries in the process of managing and making business decisions. In combination with other financial and accounting methods and tools, but also independently, the DuPont system of indicators has many benefits for the organization. It enables better planning as well as management of operations and development of the organization. Given that it combines information from two basic reports, the balance sheet and the profit and loss statement, it enables consideration of how a change in any element included in the system will affect the change in the profitability of total assets (capital). Using the DuPont system of indicators, it is possible to analyze the success of the company's business and evaluate the profitability of the business. Precisely information about the profitability of assets and the profitability of own capital is important for managers in order to know how efficiently and effectively the company's assets and capital are used in daily operations. Financial and accounting tools make it possible to analyze previous years, compare them and monitor business trends, where it is possible to easily and quickly reach conclusions and determine actions that were successful and that led to negative results.

This paper presents the advantages and benefits that the DuPont indicator system has in its practical application. The impact of this research is visible in raising awareness of both researchers and managers about the Dupont indicator system. Still, there is a lack of research on the DuPont indicator system in its practical application and use in business in the territory of the Republic of Croatia but also broader.

This research, however, is not without limitations. The conducted research includes the small logistic companies from the area of Koprivnica - Križevačka County in the Republic of Croatia. A better overview of the researched topic would be obtained if the sample included the other counties in the Republic of Croatia, especially the counties in the North of Croatia, on the basis of which the data obtained by the Dupont analysis could be compared and certain conclusions could be drawn. Likewise, this research includes a comparison of small logistics companies, where it would be desirable to include micro, medium and, large companies in the research, both companies from the area of Koprivnica-Križevačka county but also from the area of other counties of the Republic of Croatia.

Additionally, there are some suggested guidelines and directions for further research, in the application and usage of DuPont, which are as follows: an evident trend of its application in business decision-making is visible but still insufficient, especially regarding research in its use in logistics companies; DuPont and its practical implications should encourage both scholars and managers for future analysts of DuPont and better understanding of its use and beneffits that it has for the organization.

The findings of our research indicate that the use DuPont indicator system in logistic companies is providing information essential for management and business decision-making. The obtained results can provide valuable inputs for future research to investigate the possibility and identify methods of measurement for the current model, but also to expand the current model with new constructs that can capture the conceptual differences between the current model and its construct as well as a potential new one. Also, this is the research area that needs more empirical evidence, theoretical and quantitative evidence and presents scope for many studies to be carried out in the future.

7. CONCLUSION

Through this paper, the importance of DuPont analysis and its application in the calculation and prediction of profitability of assets and profitability of equity is highlighted. This paper provides an overview of a specific application of Dupont analysis in the operations of logistics companies showing specific areas that should be taken into account when managing a company and which provide key information necessary for making business decisions.

By applying the DuPont system of indicators, the company receives timely and quality information that is necessary for good company management. The profitability of assets and the profitability of own capital are significant to managers, as well as information about how efficiently and effectively the company's assets and capital are used in daily operations. In this paper, the calculation and analysis of the indicators of the DuPont system for three logistics companies in the area of Koprivnica - Križevačka County, in the period 2018 – 2020 was carried out. The presented data show how well companies achieve a return on their total assets and a return on their equity, that is, how profitable their business is. Business analysis through the DuPont system of indicators shows a positive trend in all indicators for all observed companies, but also provides guidelines for further better management of assets and equity. Although all companies operate profitable and with income, there is still a need for some improvements.

The set hypotheses through this research were proven which confirms that the DuPont analysis nowadays is an imperative in doing business when using financial analysis in managing a company.

8. REFERENCES

Renko N. (2005). Strategije marketinga, Naklada Ljevak d.o.o., Zagreb

Segetlija, Z. & Lamza-Maronić, M. (1995). Distribucijski sustavi trgovinskoga poduzeća. Ekonomski fakultet, Osijek

Sertć, M. (2021). Analiza logističkog poslovanja primjenom DuPont sustava pokazatelja, graduate paper, University North, Koprivnica

Sesar V., Buntak K. & Borlinić M. (2015). Primjena DuPont sustava pokazatelja u procesu upravljanja, Tehnički glasnik, 9 (1), p. 99-103

Turić, A. (2018) DuPont analiza profitabilnosti Ina d.d. u odnosu na usporediva poduzeća iz EU, Završni rad. Split: Ekonomski fakultet.

Vidučić, Lj. (2002). Financijski menadžment, RRiF-plus, III izdanje, Zagreb

Vidučić, Lj., Pepur, S. & Šimić Šarić, M. (2015). Financijski menadžment, RRiF, Zagreb.