Czech University of Life Sciences Prague

Faculty of Economics and Management

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Master's Thesis

Working capital management Optimization on company's level

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Economics Policy
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Thesis title

Working capital management optimization on company's level

Objectives of thesis

The goal is to:
1) understand working capital management function, objectives, instruments etc. from company'sperspective,
2) based on the descriptive and comparative analysis observe and understand working capitalmanagement practices of particular company/ies,
3) as a follow up to previous points to draw recommendations / suggestions for potential working capitalmanagement improvements leading to shareholder value reinforcement.

Methodology

Working capital management is one of the most significant and critical aspect for financial health of any company. Working capital management refers to a company's strategy related to monitoring and utilizingthe two components of working capital, current assets, and current liabilities to ensure the most financially efficient operation of the company. The primary purpose of working capital optimization is to make surethe company always maintains sufficient cash flow to meet its short-term operating costs and short-termdebt obligations.

The proposed extent of the thesis

60-80 pages

Keywords

Working capital, current assets, current liabilities, cash flow

Recommended information sources

1) Gitman, L.J., Chad, J., Z., Principles of Managerial Finance, brief. Boston: Pearson Prentice Hall, 2015,ISBN 978-1-292-06010-1.
2) Keown, A., Martin, J.D., Petty, W. Foundations of Finance. 7 vyd. New Yersey Pearson/Prentice Hall, 2010, ISBN 978-0136113652.

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Declaration

I declare that I have worked on my master's thesis titled " Working capital management Optimization on company’s level" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the master's thesis, I declare that the thesis does not break any copyrights.

In Prague on 30.11.2021 _____

Anton Shchupakov

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Working capital management Optimization on company's level

Abstract

Companies may have their level of optimal working capital that maximizes their values through the effective management of current liabilities and assets. Previously, many studies were made on the impact of working capital management on the company's performance in different sectors.

Empirical evidence has shown that working capital management can have a significant impact on firms' performance in times of financial crisis because it affects current assets, short-term liabilities, revenues, and costs of operations.

The ultimate objective of this empirical study is to examine the impact of working capital management on the performance of firms.

Based on the result of the study, firms may need to extend credit terms for customers, may prolong their cash conversion cycle, may need an extended payment period, and may or may not hold a high volume of inventory. All extending periods and cycles shall be made up to the extent of attaining an optimal level of working capital and better implementing a conservative policy of working capital management.

Based on the descriptive and comparative analysis 2 airline companies were observed and based on the financial statements their WCM practices were understood and evaluated. Recommendations and suggestions were drawn in a form of potential Working Management Optimization plans of the companies, and as a result, both of the plans were compared to each other to find out the most efficient one.

Thus, it is advisable to consider the result of this study while making decisions regarding their working capital management to support their efficiency.

Keywords: working capital management, optimization, current assets, value of the company, financial liquidity, profitability.

Řízení pracovního kapitálu Optimalizace na úrovni společnosti

Abstrakt

Společnosti mohou mít svou úroveň optimálního pracovního kapitálu, která maximalizuje jejich hodnoty prostřednictvím efektivní správy současných závazků a aktiv. Dříve bylo provedeno mnoho studií o dopadu řízení pracovního kapitálu na výkonnost společnosti v různých sektorech.

Empirické důkazy ukázaly, že řízení pracovního kapitálu může mít významný dopad na výkonnost firem v době finanční krize, protože ovlivňuje oběžná aktiva, krátkodobé závazky, výnosy a provozní náklady.

Konečným cílem této empirické studie je prozkoumat dopad řízení pracovního kapitálu na výkonnost firem.

Na základě výsledku studie mohou firmy potřebovat prodloužit úvěrové podmínky pro zákazníky, mohou prodloužit cyklus konverze hotovosti, mohou potřebovat prodlouženou platební lhůtu a mohou, ale nemusí držet velký objem zásob. Všechna prodlužující období a cykly musí být sestaveny tak, aby bylo dosaženo optimální úrovně pracovního kapitálu a lepšího provádění konzervativní politiky řízení pracovního kapitálu.

Na základě deskriptivní a srovnávací analýzy byly pozorovány 2 letecké společnosti a na základě finančních výkazů byly pochopeny a vyhodnoceny jejich postupy WCM. Doporučení a náměty byly vypracovány formou potenciálních plánů Working Management Optimization společností a ve výsledku byly oba plány vzájemně porovnány, aby se zjistil ten nejefektivnější.

Proto je vhodné zvážit výsledek této studie při rozhodování o jejich řízení pracovního kapitálu, aby se podpořila jejich efektivita.

Klíčová slova: řízení pracovního kapitálu, optimalizace, oběžná aktiva, hodnota podniku, finanční likvidita, rentabilita.

Table of content

List of figures

List of tables

Introduction

In early 2020, a new and infectious sickness called COVID-19 started in Wuhan China, and with its widespread prevalence all over the world, most countries have suffered from its economic destructive effects (Song et al. 2021). Strong evidence has suggested that the economic crisis raised by Coronavirus is completely different from past financial ones considering its reason, range, and severity (Song et al. 2021; Ding et al. 2020). Hence, the importance of the financial effects of the COVID-19 pandemic currently has attracted the attention of many financial and economic researchers around the world. One of the appropriate solutions to get rid of financial problems in the crisis time is to make appropriate decisions regarding working capital management policies (Salehi et al. 2019). Working Capital Management (WCM) talks about a plan that allows companies to use their Current Assets (CA) and liabilities efficiently, indicating maintaining enough liquidity to meet short-term debt and expenses (Tandoh 2020). Prior literature has shown unpredictable results about the influence of working capital management on company performance, finding both negative and positive effects (Salehi et al. 2019; Ebben and Johnson 2011; Singh et al. 2017; Akgun and Karata§ 2020; Oseifuah 2018; Tsuruta 2019; Zimon and Dankiewicz 2020). It has also been stressed that the global economic crisis has increased the attention and possibly changed the attitude towards working capital management as an approach to rise company profitability (Gadelius and Larsson 2019). In today's complex and changing economic world, the decisions on working capital management strategies are some of the most important and challenging tasks for corporate executives since they can play a decisive role in improving the financial situation of companies in times of crisis (Salehi et al. 2019), especially during the COVID-19 critical period. Also, particular attention should be paid to working capital management, as even the smallest mistakes in the area of working capital can lead to a loss of liquidity by companies (Chang et al. 2019).

In today’s business environment, firms need an adequate resource to assure the going concern of their business activities, and the resources are optimally employed to improve the overall performance. The impact of working capital management on the performance of firms has been investigated by many specialists.

According to the empirical works of literature of this study, the relationship that exists between working capital management and the firms’ performance was found significant. Some of the methods used by managers to make working capital decisions did not depend

on the principles of finance, rather they used their experiences which are weakly made models. This may result in firms overcapitalization or undercapitalization and then this makes managers ineffectively manage the various combination of working capital features.

The investigation made by Boisjoly et al. found that incompetency or incapability of financial managers to design and manage the working capital of the firm may lead to their failure. Firms can have abundant resources and profitability but they may face illiquidity as their assets are not ready to transform into cash. Thus, we cannot surely say that profitable firms have effective management of working capital. Also, the reason behind having extensive debtors' collection period and narrowed creditors' payment period is that managers disregard their firms' operating cycle.

Considering the result of having ineffective management of working capital, we can conclude that this area needs huge investigations and it attracts the attention of different specialists. However, there are no or few studies that were made on the issue and the problem is almost less investigated and there is a research gap on this part. The managers of different firms are managing the working capital of their firm in a traditional way which is practically considered as narrowing the cash conversion cycle for the increment of the firm's profitability or performance.

The awareness of firm managers regarding the importance of working capital management optimization is limited as there are not many researches made in this field. Thus, to fill the research gap in this particular study, the impact of working capital management on the performance of firms was investigated.

1. Aim and methodology

In an unstable economic environment during the worldwide economic crisis businesses experience significant difficulties characterized by a decline in productivity and insolvency. Hence, there is an acute issue that appears in front of the management of the companies - how to manage the company to make it profitable and efficient and maintain its competitiveness and financial stability.

A significant part of all assets of the company is formed by working capital which ensures the constant functioning of the economic activity of the company. Therefore, effective management of working capital is one of the most important aspects of the financial

policy of any company, since it performs the functions of ensuring the continuity of supply, production, and sales processes, and also plays an important role in ensuring market stability and economic security. Working capital management solutions can significantly affect the liquidity and profitability of assets, the efficiency, and the competitiveness of the company itself.

Ineffective management of working capital entails limited working capital, as a result of which turnover slows down, liquidity and solvency decreases, profit decreases, which in general poses a threat to the financial stability of the company. Thus, in order to effectively manage working capital it is necessary to provide the organization with the necessary volume of working capital, optimize the sources of their coverage, and also determine the necessary ratio between them for the smooth operation of the enterprise in the course of its activities. This provision determines the relevance of the study.

The aim of the study is to develop optimization plans for managing the working capital of companies.

The main objective of this empirical study is to examine the impact of working capital management on the performance of firms. Considering the main objectives the following are the specific objectives for this work:

1). To examine the impact of account receivables period on firms' performan.

2). To examine the impact of the cash conversion cycle on firms' performance.

3). To examine the impact of inventory conversion period on firms' performance.

4). To examine the impact of accounts payable period on firms' performance.

In the course of the study, analytical, logical-structural approaches were applied, graphic, economic-mathematical and statistical methods of processing and presenting information, as well as methods of financial and economic analysis were used.

The scientific novelty of the research lies in the following points:

1) the analysis of the definition of the essence of the working capital of domestic and foreign scientists was carried out, on the basis of which the author's proposed formulation of the concept of working capital was proposed;

2) methods of working capital management have been systematized according to the criterion of a positive impact on the optimization of working capital elements;

3) proposals were made for the management of the working capital of the company, focused primarily on a systematic approach to monitoring and management, and developed on the basis of a financial analysis of the main economic indicators of the organization;

4) specific methods are proposed to improve the efficiency of using working capital at the company which is based on tools for managing working assets including the management of inventories and receivables.

The practical significance lies in the development of measures to improve the efficiency of the working capital management system and the possibility of using the proposed complex by the company for more efficient operation of the company and minimizing financial risks.

2. Theoretical part

2.1 Working capital management

2.1.1 What is working capital

The concept of "working capital" originated in the XVII century. with the appearance of signs of the initial accumulation of wealth. At that time, the first owners of capital were merchants who acquired property through non-equivalent exchange of goods (salt, fur, food, wine, etc.). The fixed capital included ships and vans with horses, with which merchants transported goods, and working capital – purchased goods for resale. Thus, arose the concept of "working capital", which has survived to the present day.

For a modern interpretation of this concept, it is first necessary to comprehensively consider the economic category of "capital".

The economic category of "capital" is formed in the process of historical development of economic thought, its interpretation by economists is ambiguous and depends on the content that is invested in this concept. Economists of different times have tried to find ways of origin and laws of distribution of social wealth. Thus, the question of the nature of capital has always been one of the most complex and occupied one of the central places in the development of economic doctrines.

The term "capital" comes from the Latin – basic, main. In a broad sense, capital is the accumulated (total) amount of assets whose use brings income. The term "capital", which is defined as capital investment of material and monetary funds in the economy and in production is also called capital investment or investment.

Scientific knowledge of capital is inseparable from the historical evolution of society. Each historical epoch highlights its priorities in the study and formulation of this concept.

There is also no consensus on the nature of working capital which is a component of capital.

There are many different approaches to determining the economic essence of working capital in modern economic theory and practice,; use different concepts related to it: current assets, net working capital, gross working capital, short-term assets, current assets.

The concepts of "working capital" and "current assets" are identified by many economists and used as synonyms. As an economic category, working capital expresses the relationship of purchase and sale of cash, which in the market is a kind of commodity.

The acquisition of such goods by the company means the emergence of financial resources for the advance of current assets, which, unlike capital, have a physical form and are fully consumed during the operating cycle.

The erroneous identification of working capital with current assets is due to the fact that the capital invested to current assets takes their physical form and only after the end of the operating cycle of the use of current assets returns to its original form. But working capital, unlike assets, is not consumed or spent, but only invested for return after the end of each turnover in the same form for the next advance. However, not all funds invested to current assets become capital, but only those that provide economic, social or environmental effects. Therefore, it can be concluded that current assets and working capital are two categories that characterize the same objects: cash, short-term investments, receivables and inventories. But working capital is a more capacious concept than current assets. Working capital has a dual economic nature – on the one hand, it shows the components of current assets, and on the other hand, characterizes the sources of their financing.

An analysis of different approaches to defining the essence of working capital and other concepts related to it, allows us to divide them into three groups.

The first group of economists believes that working capital has a monetary nature and performs the function of payment services for the cycle. That is, working capital is defined as cash invested for the formation of working capital and current assets.

Thus, according to L. O. Rostein, "working capital – is the money available to the association to create stocks of raw materials and other tangible assets".

I. V. Zelgavils defines working capital as "cash and mobile assets that will be converted into cash during one production cycle, which ensures the continuity of the production process of production and turnover and profit".

Zvi Bodi and Robert Merton give a similar definition of "current assets": "the amount of cash of the company and all other balance sheet items that are expected to be converted into money during the year". The authors call the difference between current assets and current liabilities net working capital.

In my opinion, these definitions do not fully disclose the essence of this category, as the composition of working capital invested in current assets, in addition to cash, includes inventories, short-term financial investments and receivables.

The second group of economists defines working capital as mobile assets that are used and sold during the year or operating cycle.

Thus, M. N. Kreinin believes that working capital is a mobile part of the company's property, ie the entire value of current assets, which under normal operating conditions during the year are converted into cash due to proceeds from the sale, circulation of securities and others.

R. Brayley and S. Myers use the terms "current assets", "short-term assets", "current assets". According to them, current assets (short-term assets, current assets) are such assets that the company is going to turn into cash in the near future.

Current assets of a manufacturing company – a group of mobile assets with a period of use of up to one year which directly serve the operating activities of the company and due to their high level of liquidity must ensure its solvency under current financial obligations. It also characterizes the concept of gross current assets: "the total amount of current assets regardless of funding sources" and net current assets: "the difference between the gross amount of assets and the total amount of current liabilities". This definition focuses on the need to reconcile current assets with current liabilities. This approach can be considered justified but the stocks that are part of mobile assets are classified as less liquid assets, so mobile assets in general can't be classified as highly liquid. Also, in modern business conditions, current assets are involved not only in the operating activities of companies, but also in investment and financial.

These identical definitions of working capital and current assets of the second group of economists, as well as the first group, do not give a complete interpretation of these concepts because attention is focused mainly on the useful life of current assets and in some definitions cash is not considered as a component of current assets.

The third group of economists defines working capital as an invested value. In contrast to the definitions discussed above, it emphasizes, first, the mobile renewable nature of value, which is only invested and returned after each cycle in cash. Secondly, working capital is considered from the standpoint of investing in current assets.

F. Lee Cheng and J. I. Finnerty define the term "working capital" as "reflected in dollars current assets of the organization, which include cash, easily traded securities, inventories and receivables".

J. K. Van Horn understands working capital as net working capital and gross working capital. According to the authors, accountants who use the term "working capital" mean "net working capital" , which is the difference between current assets and current liabilities.

Similar to the views of F. Lee Cheng, J. I. Finnerty, J. K. Van Horn on the economic essence of working capital is the opinion of E. Brigham: "working capital – the firm's investment in short-term assets – cash, liquid securities, inventories and accounts receivable".

So, working capital is the value used for a certain period of time in the means of ensuring a continuous process of production and sale of products, the formation of cash and their use to ensure profitability, solvency and financial stability of the company.

This definition emphasizes the nature of working capital, determines the term and amount of value, forms of working capital (working capital, cash, inventory, and short-term financial investments), and also the purpose of it.

2.1.2 Working capital in terms of company evaluation

Working capital management involves the management of current assets and current liabilities and their mutual relationship (Lee and Lee, 2006). And it involves the day-to-day administration of current assets and current liabilities. The general corporate objective is to maximize the value of the company over the long run, a company must limit its investment in working capital, while still maintaining adequate liquidity for normal operations (Bush and Johnston, 1998). According to Afza and Nazir (2007) a “firm may be able to reduce the investment in fixed assets by renting or leasing plant and machinery, whereas the same policy cannot be followed for the components of working capital” (p.20). A company may adopt an aggressive working capital management policy with a low cash conversion cycle (CCC). While conservative strategy indicates that a company may adopt a conservative working capital management policy with a high CCC (Jose et al., 1996). Excessive levels of current assets may have a negative effect on the company’s profitability, whereas a low level of current assets may lead to a lower level of liquidity and stock outs resulting in difficulties in maintaining smooth operations (Afza and Nazir, 2007). Much of the literature focuses on the relationship between working capital and corporate profitability. Jose et al. (1996) examine the relationship between profitability measures and management of ongoing liquidity. Deloof (2003) in his about the relation between working capital management and corporate profitability suggests that more aggressive liquidity management (lower CCC) is associated with higher profitability. Also, the results suggest that managers can increase

corporate profitability by reducing the number of days of accounts receivable and inventories. Less profitable companies wait longer to pay their bills. Uyar (2009), examining the relationship between the length of the CCC and the size of the companies, indicates that there is a significant negative correlation between the CCC and the company size. Further Eljelly (2004) found that the size also has a significant effect on profitability at the industry level. Empirical findings (Samiloglu and Demirgunes, 2008) show that the account receivables period, inventory period, and leverage affect company profitability negatively. Nobanee and AlHajja (2009) suggest that managers can increase profitability of their companies by shortening the cash conversion cycle, the receivable collection period and the inventory conversion period. Raheman and Nasr (2007) used net operating profitability, and the results show that there is a strong negative relationship between variables of the working capital management and profitability of the company. In contrast, Lyroudi and Lazaridis (2000) in their study found that the cash conversion cycle was positively related to the return on assets and the net profit margin.

While Nazir and Afza (2008) in their study utilized the working capital requirement as the dependant variable, the operating cycle of company, return on assets and Tobin's Q, have been used as the determinants of working capital management (independent variables, not like in the majority of the studies), because of the different objectives. Hill et al. (2010) indicates that increases in sales growth and sales volatility cause companies to manage operating working capital more aggressively, they find limited support for a direct correlation between gross profit margin and WCR. Siddiquee and Khan (2009) in their study analyze the working capital performances of 83 listed companies from seven different sectors of Dhaka Stock Exchange Ltd. The results show that significant differences exist among the position of the companies in working capital measures across time.

Kieschnick et al. (2006) examine the implications of a corporation's working capital management for its valuation. Consistent with industry surveys, they find evidence that companies over-invest in working capital. Overall, their evidence suggests that managers respond positively to incentives and monitoring in managing their company's working capital. Kieschnick et al. (2008) in their empirical study examine the relationship between corporate working capital management and company value, as well as examination of how agency costs influence this relationship. They find that on average an additional dollar invested in net operating working capital at the mean level of such investment reduces company value and also the exclusion of agency costs in prior models of the effect of

working capital management on company value is of importance. After them, Luo et al. (2009) study whether and how working capital efficiency (measured by cash conversion cycle) affects company future performance and company value, this is another objective they added. They found that the efficiency of a company's working capital management has lasting impact on company performance.

2.1.3 Effects caused by a change in working capital

For many companies, a negative factor in the process of their operation is the lack of working capital which is accompanied by a low level of their use. The experience of different management systems determines the dependence of the results of companies on the effectiveness of managing the process of formation and use of their working capital. Therefore, determining the need for working capital as an important factor in improving the efficiency and acceleration of their circulation for the companies becomes particularly relevant.

Accelerating the turnover of working capital reduces the need for them and allows companies to release part of working capital for production purposes or for additional production.

As a result of accelerating turnover, material elements of working capital are released, less stocks of raw materials, fuel, balances of work in progress, etc. are required, and, consequently, monetary resources previously invested in these stocks are released. The released monetary resources are placed on the current account of the company, as a result of which their financial condition improves, its solvency improves.

Thus, the role of accelerating the turnover of working capital in the formation of profits is very high and determines the need for continuous management of this process in order to improve the efficiency of working capital management in general.

The efficiency of working capital management at the company is characterized by the speed of their turnover or, in other words, Cash Conversation Cycle (CCC). The less this period is the faster company receives cash invested into the operations.

As per Gitman, Lawrence, Zutter Chad (2014) we can find out how to calculate the CCC.

A firm`s operating cycle can be calculated as:

$$OC = AAI + ACP$$

where OC is a firm`s operation cycle (Time from the beginning of production to collection of cash from the sale)

AAI – Average Age of Inventory;

ACP – Average Collection Period;

Cash Conversation Cycle (CCC) formula:

$$CCC = OC – APP$$

Where APP is the Average Payment Period (measured in days).

We can see that CCC has 3 main components: average age of inventory, average collection period and average payment period, so that we can say that if there will be any change in one of the components there will be changes in the amount of resources tied up in the day-to-day operation of the company.

Accelerating the CCC leads to both increased efficiency of working capital and increased efficiency of the company. Under conditions of profitable operation of the company, the consequence of accelerating the process of working capital turnover is an increase in the value of output and annual profit.

At the stage of creating inventories ways to accelerate turnover can be:

– introduction of economically justified stock standards;

– apply the principle of optimal value for money in the formation of inventories;

– bringing suppliers of raw materials, semi-finished products that complete products to consumers;

– improving the supply conditions, including through the establishment of clear contractual terms and their implementation, the optimal choice of suppliers, the establishment of transport;

– expansion of the warehousing system of logistics, as well as wholesale trade in materials and equipment;

– complex mechanization and automation of loading and unloading works in warehouses.

At the stage of work in progress:

– acceleration of scientific and technological progress (introduction of advanced equipment and technology, especially waste-free, rotary lines, chemical production);

– development of standardization, unification, typification;

– organize the use of secondary resources;

– improving the forms of organization of industrial production, the use of cheaper structural materials;

– improving the system of economic incentives for the economical use of raw materials and fuel and energy resources;

– increase in the share of products in high demand.

At the stage of circulation:

– improving the marketing activities of the company;

– stimulating sales;

– effective management of receivables;

– search for optimal schemes of interaction with banking institutions regarding fundraising and settlements;

– timely registration of documentation and acceleration of its movement;

– bringing consumers closer to its manufacturers;

– improvement of the settlement system;

– increase in the volume of sold products due to the fulfillment of orders for direct connections, early production, production of saved materials;

– careful and timely selection of shipped products, in batches, assortment, transit rate, shipment in strict accordance with the concluded agreements.

If we talk about improving the use of working capital, we shouldn`t forget about the economic importance of saving working capital, which is expressed in the following:

1) Reduction of specific costs of raw materials or fuel provides production with great economic benefits. First of all, it gives us the chance to make more finished goods out of given quantity of material and acts as one of serious preconditions of increase in scales of manufacture.

2) The desire to save material resources encourages the implementation of new technology and the improvement of technological processes.

3) Savings in the consumption of material resources contributes to improving the use of production capacity and increase social productivity.

4) Saving material resources greatly contributes to reducing the cost of industrial products. Significantly affecting the reduction of production costs, saving material resources has a positive impact on the financial condition of the company.

The functioning of working capital begins from the moment of their formation and placement. Rational placement as a component of working capital management has certain

features not only in different industries but also in different companies of the same industry. The determining factors here are the following: type of economic activity, production volume; level of technology and organization of production; term of the production cycle; system of supply of necessary inventory and sales of products, etc.

Depending on the location, conditions of organization of production and sale of working capital have different levels of liquidity, and hence the risk of use.

It should also be noted that the efficiency of working capital depends on many factors. Among them are external factors that affect regardless of the interests and activities of the company, and internal, on which the company can and should actively influence.

External factors include: the general economic situation, the peculiarities of tax legislation, the conditions for obtaining loans and interest rates on them, the possibility of targeted funding, participation in programs financed from the budget. Taking into account these factors, the company can use internal reserves to optimize working capital.

Improving the efficiency of working capital is provided by accelerating their turnover at all stages of the cycle. Significant reserves for improving the efficiency of working capital are laid directly in the company. In the field of production, this applies primarily to inventories. The main ways to reduce inventories are reduced to their rational use; elimination of excessive stocks of materials; improvement of rationing; improving the organization of supply, in particular by establishing clear contractual terms of supply and ensuring their implementation, the optimal choice of suppliers, the smooth operation of transport. An important role belongs to improving the organization of warehousing.

Thus, the main areas of management of current assets are: reduction of inventories in warehouses by reducing excess stocks of materials, fuel, tools, due to improved supply, by reducing the cost of materials per unit of output; reduction of duration of a cycle of manufacture of the basic production at the expense of implementation of new technics and technology, increase of labour productivity, norms of expenses of resources, reduction of time of stay in backgrounds of details, assembly units; reduction of balances of unsold products due to acceleration of sales, increase of efficiency of work of marketing service, improvement of calculations, improvement of completeness of deliveries; increasing the rhythm of production due to the uniformity of production and shipment of products, improving the planning and organization of production; development of concentration, specialization and cooperation; improving the product range and improving product quality.

2.2. Management of working capital

2.2.1 General conditions of management of working capital

In order to ensure the functioning of the company it is necessary to competently manage the working capital, since the financial stability of the entire company depends on managerial decisions.

For effective WCM it is necessary:

−to define the purpose and objectives of WCM;

−to form sources of information that are necessary for the analysis of the structure, management of working capital;

−to analyze financial performance of the company and the use of working capital;

−evaluate the factors affecting efficiency the use of working capital;

−use methods of working capital management.

The main purpose of working capital management is to determine optimal structure of working capital and the formation of sources of financing them, taking into account such indicators as liquidity and profitability of the company. In the process of working capital management, a consistent implementation of the following stages is built:

−carrying out a financial analysis of the company's activities, incl. the company's working capital;

−calculation and optimization of a sufficient volume and structure of working capital;

−management of sources of formation of circulating assets.

Working capital management is an important process and affects all structural divisions of the company. The procedures for optimization and monitoring of current assets are of the highest priority and should be perceived as functional responsibilities of specific divisions, but at the same time it is necessary to take into account the coherence of actions between the divisions of the company, otherwise the effect obtained from the release of working capital and receivables from working capital will decrease.

For competent and correct operation of a company aimed at increasing profits it is necessary to bring analytical and accounting systems in line with management tasks, as well as increase the planning horizon and improve the quality of forecast information, take into account internal and external factors that affect the need for working capital.

2.2.2 Indicators for expressing company's profitability

A. Lowloroll believes that efficiency is a universal economic indicator that integrates the impact of a variety of factors and the course of all business processes. He built an analysis in five areas - the objectives, the company's efficiency, corporate efficiency, comparability of results, the progressiveness of changing trends.

A. Lowloroll considers the efficiency of working capital at the fourth level of assessment of the overall efficiency of the company. Thus efficiency of material stocks the author allocates in a separate control element. Accordingly, the second place is the efficiency of profit, and the first - the efficiency of the total income of the company.

Working capital management is a continuous process of action on each of its elements aims to increase the level of profitability of the company. Thus, the ratio of working capital in the sphere of production and circulation is different in different sectors of the economy of country. This is due to the peculiarities of the organization of production, supply, marketing, as well as the payment system. To ensure the continuity of the process of production and sale of products, it is necessary to achieve the optimal ratio of working capital in the field of production and circulation. At the same time, the company is interested in reducing working capital in the field of circulation by improving the supply system, more rational forms of payment.

Much attention was paid to the analysis of working capital in a special scientific literature, but the methodology of the analysis was mainly macroeconomic in nature, which was due to the centralized management of all subjects and objects of economic activity. Thus, from the point of view of the company elements of working capital were analyzed as separate objects, and such retrospective analysis was methodologically detached from forecasting and did not aim to create an effective information system for internal management of financial resources, which will affect its profitability in general.

The intensive path of development is the growth of production through the more rational use of its factors, ie the implementation of new technologies, improving its structure (new structure of economic relations, management and cooperation, etc.), improving the use of fixed assets, working capital, accelerating their turnover, depreciation, training of labor and improving the scientific organization of labor. It is also important to achive product quality, increase productivity, resource conservation, improving the use of existing material base of production. Such measures include energy-saving projects, programs to reduce material and labor intensity, and others. The undoubted advantage of this direction is

overcoming the obstacles caused by limited natural resources and the ability to achieve very high rates of economic growth.

For the successful development of the economy of any company it is necessary to study the ratio of production (sales) with costs and profits. This ratio is analyzed to study a set of causal relationships of the most important indicators of the final results of the company, the scientific justification of management decisions

Reserves to increase the amount of profit and profitability are related to the areas of management of the company, for managers and relevant specialists, it is important to detail the scale, forms of control and use of the most significant internal and external efficiency factors at different levels of management.

The structuring of working capital management processes of companies is the establishment of space-time structure of components of different nature (labor, means of production, materials, finance) and their interaction in order to obtain maximum qualitative and quantitative results in the shortest time and with minimum resource costs. One of the main problems in the organization of the management system in companies is the problem of flexibility. The purpose of creating a working capital management system at domestic companies is to increase profitability and meet consumer demand. The main results of working capital management are: integrated use of raw materials; growth of production volumes; reduction of receivables; increasing the turnover of working capital; reducing the duration of one turnover; significant reduction in the number of unnecessary works; providing the activities of companies with purposefulness; formation of a system of staff motivation; ensuring efficiency, namely the profitability of the company as a whole, etc. As already mentioned, each company has certain features and its own development process, so when forming a working capital management system it is necessary to take into account the specifics of the functioning of each of them separately.

Various economic indicators are calculated in the process of working capital analysis which allow to understand the effectiveness of its management among which the greatest importance is given to such indicators as:

Turnover ratio (turnover rate):

$$TR = R / CO, \quad (1)$$

where TR is the turnover ratio;

R – revenue;

CO – the average value of the indicator on which the calculation of turnover is made.

Inventory Turnover ratio = Cost of Goods Sold / Average inventory

Receivables Turnover Ratio = Credit Sales / Average Accounts Receivables

Working Capital Turnover Ratio = Sales / Working Capital

Working Capital = Current Assets – Current liabilities

Working capital ratio = current assets / current liabilities

Payables Payment period (PPP) = Days in period / Average payable turnover

The turnover ratio, as well as the turnover period are considered both in the aggregate of all working capital and by its elements: inventories, receivables, working capital.

DuPont Analysis Technique is a financial analysis technique that evaluate the sources of a firm's earnings to shareholders, or in other words return on equity. Return on Equity (ROE) measures the rate of return of a firm on shareholders' investment to the company (Brigham et al., 1999).

ROE = Net Income Available to Common Stockholders / Shareholders' Equity (8)

To understand the ability of a firm's creating profit, or return to shareholders, DuPont analysis can be expanded by decomposing the formula given in Equation 1.

ROE = Net Profit / Shareholders' Equity = Net Profit / Revenue * Revenue / Total Assets * Total Assets / Shareholders' Equity (9)

Equation 9 shows the components of a firm's profitability to shareholders. This analysis shows how the return on equity of a firm is affected by its asset turnover, profit margin and leverage. We can basically visualize this approach in Equation 10.

ROE = Profit Margin x Asset Turnover Ratio x Equity Multiplier (10)

With DuPont Analysis, earning power of equity can be analyzed based on profit margin, turnover ratio of assets and equity multiplier (Ercan and Ban, 2018).

Profitability: It is calculated by dividing net profit to net sales. Profit margin shows a firm's ability to create net profit based on its total revenue. Profit margin represent operating efficiency in DuPont Analysis.

Efficiency: It is calculated by dividing total revenue to total assets of a firm. Asset turnover indicates that how efficiently a firm uses its assets to create revenue. With this ratio, a firm's efficiency to use its assets is evaluated in DuPont Analysis.

Capital Structure: Capital structure is represented by Equity Multiplier. Equity Multiplier is calculated by dividing total assets to shareholders' equity. It represents the efficiency of financial leverage of a company.

According to the modern understanding of leading Western researchers, working capital management refers to all management decisions and actions that usually affect the size and efficiency of working capital.

The presence of fragmentary systems and shortcomings in the management of working capital of companies necessitate their solution. Improving working capital management in domestic companies will ensure the achievement of management goals, namely, increase profitability, responsiveness to emerging problems, determine the specific process in which they occurred and, consequently, increase the efficiency of all elements of working capital. In addition, it is necessary to apply and choose management methods that do not require significant investment, organically combined with the existing management system, combining different management functions.

The prospect of forming and developing working capital management systems for most companies is to take into account the peculiarities of methods to increase the profitability of the company, which will increase the efficiency of all elements of working capital and, consequently, ensure a high level of solvency and liquidity. It is known that every existing system must develop and improve. It is especially important not only to diagnose the state of activity, but also to model the future steps of the company.

2.2.3 Relation between the value of the company and the working capital

The analysis involves the calculation and comparison with previous values of turnover and return on working capital, liquidity ratios, determining the impact of the components of working capital on the value of the financial result.

The working capital financing policy is to determine the optimal ratio between working capital and borrowed capital. It should be noted that this indicator determines the degree of liquidity of the company. Therefore, when determining the policy of financing working capital, it is necessary to take into account the risk of loss of liquidity. When choosing a model of working capital management should be guided by three main models adopted in domestic practice: aggressive, conservative and moderate.

At the stage of optimizing the volume and structure of working capital, based on the selected management model, the possible reserves of improving the efficiency of working capital use hidden in the analysis process are taken into account.

There has been a lot of researches done during the past 20 years that investigate relationship between cash holdings and firm value. A.N. Hingurala Arachchi, Wasantha

Perera and Ratnam Vijayakumaran (2017) have prepared an article that aims to investigate "The Impact of Working Capital Management on Firm". Authors mentioned some works that was done during the last years, for example, Autukaite and Molay (2011) find that shareholders of French companies undervalue cash holdings and net working capital since excess working capital means money tied up in current assets that does not generate a return; instead, an additional euro invested in net operating working capital than usual level decreases firm value. This can be considered as indirect conformation of the agency cost of free cash flow (Jenson 1986). Further, they find that shareholders of a highly levered firm tend to give less value to cash holdings and working capital since its returns are used to pay for debt holders. Pinkowitzet al. (2006), Lee and Lee (2009) find negative association between cash holdings and firm value while Bates et al. (2009), Chen (2009) suggest that financial market value liquidity indicating a positive relationship between cash holding and firm value in their studies. Pinkowitz and Williamson (2007) report that value of cash holdings differs on several factors and firms with high growth opportunities and operating risk tend to have high value to their cash holdings.

The impact of efficiency of working capital management on market performance of the firms is overlooked. In fact, only a handful of studies investigate how the efficiency of WCM affects firm value.

Mona Al-Mwalla (2012) focus on a sample of 57 listed companies on Amman Stock Exchange for the period of 2001-2009 to examine the impact of working capital management policies on the firm's profitability and value. They conclude that a conservative policy regarding WCM shows a positive effect on the firm's profitability and value and vice versa. They also found that firm's size, growth and GDP shows a positive effect on the profitability and value.

Abuzayed (2012) use a sample of 52 non-financial firms of Amman stock market over the period 2000-2008 to examine the effect of WCM on firm performance. She uses two measures, namely accounting measure (profitability) and market based measure (Tobin Q)to measure firm performance and find that efficient WCM improves both firms' market value and profitability. More recently, Wasiuzzaman (2015) uses 192 Malaysian listed companies over the period 1999-2008 to examine the relationship between working capital management efficiency and firm value and the influence of financing constraints on this relationship. Her results show that improvements in working capital efficiency through reduction in working capital investments leads to higher firm value and this relationship is more pronounced in

the financially constrained firms suggesting that firm value significantly increases by efficient management of working capital in financially constrained firms.

Although recent research has shown increasing interest on the relationship between WCM and firm value, only a study by Bandara & Weerakoon Banda (2010) investigates the impact of working capital practices on firm value which is measured by market value added and economic value added in the context of Sri Lanka. Focusing a sample of 72 companies listed on CSE, they document that there is significant negative relationship between conservative WCM practices and market value added and moderate working capital practices yield higher market value added.

Furthermore, their results show that economic value added decreases with aggressive working capital policy and firms following moderate working capital practices tend to improve both economic and market value added.

In sum, existing literature regarding impact of working capital management on firm value is very limited and particularly, no one has focused on the relationship between the efficiency of WCM and Tobin Q which is a commonly used proxy for firm value.

2.2.4 Relation between income from shares and the working capital

The academic literature proposes different competing views to explain the relationship between working capital and firm performance. Sorin Gabriel Anton and Anca Elena Afloarei Nucu in their article called „The Impact of Working Capital Management on Firm Profitability: Empirical Evidence from the Polish Listed Firms“ for Journal of Risk and Financial Management was investigating the relationship between working capital and firm profitability. On the one hand, most of the previous studies find a positive relationship between the two measures, based on firms from developed economies – the US (Lyngstadaas 2020), the UK (Goncalves et al.2018), Finland (Enqvist et al. 2014), or from developing economies – Uganda (Kabuye et al. 2019), Egypt (Moussa 2018), Vietnam (Nguyen and Nguyen 2018), Ghana (Amponsah-Kwatiah and Asiamah 2020). Kabuye et al. (2019) analyze the impact of internal control systems and working capital management on the financial performance of 110 supermarkets from Uganda and find that working capital management is a significant predictor of financial performance. Moussa (2018) examines the impact of working capital management on the performance of 68 industrial firms from Egypt for the period of 2000-2010 and documents a positive relationship between working capital management (measured by the cash conversion cycle) and firm profitability.

The author points out that stock markets in less developed economies do not realize the optimum efficiency of their WCM. Nguyen and Nguyen (2018) analyze the relationship between working capital management and corporate profitability and document a positive nexus between working capital management and the performance of Vietnamese listed firms over the period of 2008-2014. Listed manufacturing firms in Ghana exhibit a positive relationship between different components of working capital and profitability, as reported by Amponsah-Kwatiah and Asiamah (2020). Moreover, Goncalves et al. (2018) confirm that WCM efficiency increases profitability on the example of UK unlisted companies between 2006 and 2014. For the US, effective working capital management is found to be associated with the higher financial performance of listed manufacturing firms, as reported by Lyngstadaas (2020). Enqvist et al. (2014) examine the impact of working capital management on firm profitability in different business cycles, on the example of Finland between 1990 and 2008, and highlight that firms can enhance their profitability by improving working capital efficiency. This first point of view is explained by the fact that working capital offers the firms the opportunity to grow by increasing sales and revenues. There are firms with large exposure to risk connected to small levels of inventory (Michalski 2016). Therefore, in the case of those firms, holding a low level of inventory leads to negative modifications of sale levels and weaker profits (Michalski 2016).

On the other hand, an alternative strand of research reports that WCM negatively influences profitability, using samples for developed economies (Fernandez-Lopez et al. 2020; Ren et al. 2019; Dalci et al. 2019), European Union (Akgun and Karatas 2020), or for developing economies (Pham et al. 2020; Wang et al. 2020; Le 2019; Yusoff et al. 2018; Habib and Huang 2016; Ukaegbu 2014). Fernandez-Lopez et al. (2020) report a negative relationship between different components of working capital and firm performance for a sample of Spanish manufacturing companies during the period of 2010-2016. Dalci et al. (2019) analyze the relationship between cash conversion cycle and profitability over 2006-2013 for 285 German non-financial firms and found that shortening the length of cash conversion cycle has a positive effect on the profitability of small and medium-sized firms, based on different methodologies: pooled ordinary least squares (OLS), fixed effects, random effects, and generalized method of moments (GMM).

A negative relationship between working capital and business performance is found by Akgun and Karatas (2020) for a sample of European Union-28 listed firms during the 2008 financial crisis. Moreover, an inverse link between the cash conversion cycle and

profitability of Chinese non-state-owned enterprises is found by Ren et al. (2019). Le (2019) reports a negative impact of working capital management on firm valuation, profitability, and risk for a sample of 497 firms from Vietnam over the period of 2007-2016. The same negative relationship for Vietnamese steel companies is also reported by Pham et al. (2020). Yusoff et al. (2018) investigate the relationship between working capital management and firm performance for 100 selected manufacturing companies in Malaysia.

The authors show that the inventory conversion period, average collection period, and cash conversion cycle are significantly and negatively correlated with profitability. Improving firm performance by a conservative working capital management policy is also confirmed by Chang (2018), based on a sample of 31,612 companies from 46 countries over the period of 1994-2011. A detrimental influence of a longer cash conversion period on profitability is reported also for India by Shrivastava et al. (2017) based on both classical panel analysis and Bayesian techniques. Habib and Huang (2016) find that positive working capital harms profitability, while a negative working capital affects profitability positively, on the example of Pakistan, by employing panel least squares estimation, panel fixed effect, and panel generalized method of movement. A negative association between WCM and performance of non-financial listed firms in Pakistan is also highlighted by Wang et al. (2020).

Using data on Brazilian public companies over the period of 1995-2009, De Almeida and Eid (2014) find that increasing the level of working capital at the beginning of a fiscal year diminishes company value. Moreover, a negative effect of cash conversion cycles on firm profitability, measured as net operating profit, is documented by Ukaegbu (2014), based on a panel of manufacturing firms in Egypt, Kenya, Nigeria, and South Africa for the period of 2005-2009.

The second point of view is explained by the fact that higher investments in working capital involve more financing and, therefore, the interest expenses of firms might increase, being more exposed to bankruptcy risk. It is appreciated that an increase in the level of working capital generates higher costs of holding and managing working capital, with a negative effect on firm value (Michalski 2014).

However, the relationship of working capital components with the firm value depends on the risk-sensitivity level of firms (Michalski 2014). Before, during, and after a financial crisis, Michalski (2016) demonstrates that the level of working capital is higher and acts as a hedging instrument against the cost of disruptive productivity.

Recently, the third point of view emerged and focused on the functional form of the relationship between working capital and firm profitability. A few studies report a concave relationship between the two measures, most of them on the example of firms from developed economies (Mahmood et al. 2019; Tsuruta 2018; Aktas et al. 2015; Banos-Caballero et al. 2014) followed by a sample of firms from emerging European countries (Botoc and Anton 2017) or firms from a certain sector (Mun and Jang 2015). Mahmood et al. (2019) report an inverted U-shaped working capital-profitability relationship using GMM as methodology, for a sample of Chinese companies over the period of 2000-2017. Empirical evidence of inverted U-shaped relationship between working capital and profitability of Chinese listed companies is also reported by Laghari and Chengang (2019), based on the same GMM methodology.

Using data from over 100,000 small businesses in Japan, Tsuruta (2018) reports a negative impact of working capital on firm performance in the short run, but positive over longer periods. Altaf and Shah (2018) provide evidence of the inverted U-shape relationship between WCM and firm profitability for a sample of 437 nonfinancial Indian companies, based on GMM methodology. Botoc and Anton (2017) report an inverted U-shape relationship between working capital level and firm profitability, based on a panel of high-growth firms from Central, Eastern, and South-Eastern Europe over the period of 2006-2015. The concave relationship between working capital level (measured by the cash conversion cycle) and firm profitability is also reported by Afrifa and Padachi (2016), using panel data regression methods, for a sample of 160 listed firms during the period of 2005-2010. Aktas et al. (2015) document the relationship between WCM and firm performance on a sample of firms from the US over the period of 1982-2011 using fixed-effects regressions.

The authors highlight an optimal point of working capital investment, towards which firms may converge to improve their overall performance. Moreover, Mun and Jang (2015) report a concave impact of working capital on firm value, which supports the idea of an optimal working capital level for US firms from a specific industry (restaurants), over the period of 1963-2012, based on static and dynamic panel data methodologies. For a sample of firms from the UK, Banos-Caballero et al. (2014) point out a non-linear relationship between working capital and firm value, meaning that there is an optimal level of working capital that maximizes firm revenues.

Additionally, the optimal level depends on the financing constraints, the authors indicating that the optimal working capital level is lower for firms under financial constraints.

As can be noticed, corporate finance literature does not provide a general agreement on how working capital affects firm performance. The divergence can be explained by different measures used for working capital: cash conversion cycle (Dalci et al. 2019; Shrivastava et al. 2017; Ukaegbu 2014), most popular indicator used as proxy, net trade cycle (Banos-Caballero et al. 2014) or other measures (Inventory Turnover Ratio, Working Capital Turnover Ratio). Using these measures, in most of the studies, working capital is expressed as a composite measure (Prasad et al. 2019), but there are also a few studies that have examined the impact of working capital on profit, at the level of individual components of cash conversion cycle or net trade cycle (Enqvist et al. 2014).

Moreover, Mahmood et al. (2019) provide several reasons to explain why companies may exhibit a different working capital-profitability: ownership structures, financial flexibility, tax provisions, and leverage. Moreover, the mixed results highlight that the relationship between working capital components and firm profitability may be more complex, and the empirical studies have not found the underlying mechanisms (Peng and Zhou 2019). In a recent paper, Peng and Zhou (2019) propose to consider different discount rates of companies to encounter the inconsistency in the relationship between working capital components and corporate profitability.

Maximization of the business profitability is an effect of working capital management, but also the reverse causality is plausible when firms are profitable, they have more cash to invest in working capital. Moreover, both firm profitability and working capital are determined by multiple factors.

From the perspective of potential endogeneity issue, the study of Seth et al. (2020) is probably among the first that evaluates the impact of several exogenous variables on the WCM efficiency and firms' performance. Based on data envelopment analysis and structural equation modeling, the authors find that the following variables have a direct effect on WCM efficiency, and, therefore, on firms' performance: interest coverage, leverage, net fixed asset ratio, and asset turnover ratio.

The literature recognizes some relevant channels that moderates the relationship between working capital and firm performance. One relevant channel is corporate governance. Kayani et al. (2019) provide evidence on the collective empirical impact of

WCM and corporate governance on financial performance for the US listed firms. The authors recommend considering the collective effects of short-term (WCM) and long-term (corporate governance) indicators, on financial performance. Giroud and Mueller (2011) take into account market competition and highlight, that, weak corporate governance lowers firm value in non-competitive industries. Moreover, the endogeneity problem can be driven by CEO characteristics. The firm's chief executives are more focused on achieving short-term profitability, rather than long-term performance (Kayani et al. 2019).

From the methodology perspective, the empirical findings are, mostly, documented on static panel data methods (regression analysis) and correlation analysis. Recently, some studies use methods, like GMM to control for endogeneity challenges (Dalci et al. 2019; Mahmood et al. 2019; Laghari and Chengang 2019; Altaf and Shah 2018; Botoc and Anton 2017).

Endogeneity is recognized as being a challenge in corporate finance, and thus Li (2016) proposes several methods to deal with it, as follows: GMM, instrumental variables, fixed effects models, lagged dependent variables, and control variables. The current econometric analysis is performed using, behind ordinary least squares, two additional panel data techniques, the fixed-effects, and panel-corrected standard errors models.

The justification is represented by the advantages of fixed-effects regression analysis, which takes full account of factors that might influence firm profitability in a certain year, and respectively of panel-corrected standard errors model, which accounts for firm-level heteroscedasticity and contemporaneous correlations across firms. Moreover, the combination of the methods (fixed effects and meaningful control variables) appears to work in mitigating endogeneity issues, according to Li (2016).

2.2.5 Relation between economic level of the country and the working capital

Modern dynamic economic relations and their depth, increasing the role of innovation factors in ensuring the competitiveness and long-term profitability of companies determine the need to rethink the analytical tools for its management. Today, it is the criteria for evaluating management decisions, ie the basics of economic calculations, one of which is the management of working capital. In market conditions, profit is the source of all financial resources of the company. The amount of profit characterizes the financial results of the company and determines its financial condition. Thus, there is a need for theoretical research and development of practical analytical tools to achieve high management performance.

Significant rates of economic development, dynamic changes in the external environment, the introduction of world standards of activity require domestic companies to make the most efficient use of available resources and increase the efficiency of their operation. Thus, there is a need for new guidelines and management methods to accelerate economic transformation in companies. Since the cost of production is determined based on the socially necessary level of economic activity (labor costs), and the cost of production – based on actual labor costs, the difference between socially necessary and the actual level of economic activity is reflected in the company's profit, which is a modified form of added cost. At a stable price (cost) reduction of production costs leads to an increase in company profits. And vice versa. That is why profit is the main generalizing indicator of the level of economic activity of the company. Thus, profit is the main indicator of economic efficiency of economic activity of the company.

Turning directly to the analysis of profitability, it is necessary to point out the wide variety of technologies for the synthesis of analytical indicators. However, we consider the most indicative and well-known such technologies to study the effectiveness of activities through profitability. All production and functional divisions of the company take part in profit planning - at organizational responsibility for this business of financial service. Only in this case, the plan will correctly reflect the domestic reserves of production on the basis of more rational use of materials, labor and financial resources, especially working capital. To understand the relationship and place of working capital management in the overall management system of the company, the work of economists on this issue was studied.

The processes of formation and use of current assets are influenced by political, economic, technical, social, marketing and other factors. Within such factors, economists identify those on which depends the company's need for current assets; factors that determine the "inflow" and "outflow" of current assets; factors influencing the organization of material flows; factors under the influence of which the formation of the structure of current assets, external and internal factors influencing current assets.

Consider the main external factors influencing current assets.

Taxes (tax policy of the state) from the point of view of the company is a tool for regular withdrawal of the component of current assets, which is in the most liquid form. Thus, the tax policy on the collection of indirect taxes is accompanied by the immobilization of current assets and a simultaneous increase in accounts payable. The most painful issue is the late refund of VAT, which has a significant negative impact on current assets.

Monetary policy (including currency regulation) is the leading tool for regulating the country's monetary circulation, ensuring the passage of current assets of all stages of circulation. The speed of passage and the volume of such a component of current assets as working capital, which is their most liquid form, directly depends on the volume of money supply in the economy.

Monetary policy affects the availability of credit resources, which is one of the main sources of covering the shortage of current assets of companies, which arises due to payment gaps.

The nature of the impact of customs regulation (the level of import and export duties) on the provision of industrial companies with current assets is similar to tax policy. Its role is to withdraw part of current assets in the form of duties, to influence the supply of industrial companies with current assets through the size of sales and the cost of purchased imported materials.

Accounting policy, which provides for regulatory influence on the accounting of the movement of components of current assets, has become one of the leading factors influencing the provision of companies with this type of assets. The complexity of the requirements for the formation of the cost, accounting for production costs and sales of industrial products, significantly affects the process of managing production and sales inventories, receivables, working capital, and current financial investments.

External factors in relation to which the state cannot carry out direct state regulation are inflation, the level of energy prices, the level of economic development of the region (dynamics of industrial production, resource

security), development of financial infrastructure.

The inflationary effect of leaching of current assets arises due to the delay of subsequent costs in relation to income and costs of forming current assets. If inflation is moderate and predictable, it is possible to predict with a sufficient degree of accuracy its impact on the value of current assets, including to determine the benefits of using borrowed funds (loans, accounts payable).

Inflation increases investment in current assets, especially receivables, because the payment for work performed is made with a certain lag in relation to their performance, even with timely payment, the funds are circulated, returned to the manufacturer largely depreciated, and this depreciation is all the more , the longer the production cycle. Funds invested in inventories are also subject to inflationary effects, as not all inventories are

equally liquid, and lose value in sales. If the company is profitable, the losses are covered by the use of profits or reserve capital, which reduces the financial stability of the company.

The increase in energy prices has a significant impact on the provision of companies with current assets. The country's industrial production is characterized by energy intensity, which developed in Soviet times as a result of the availability of large amounts of cheap energy.

To a large extent, the level of provision of industrial companies with current assets depends on the socio-economic development of the region, which includes the development of production capacity and dynamics of industrial production, construction, demand, level of raw materials, investment activity, social climate and others.

The main indicators of economic development of the region in terms of impact on the provision of industrial companies with current assets are trends in the dynamics of production, timeliness of payment for sales, capacity utilization.

One of the leading factors influencing the provision of companies with current assets is the growth of receivables, especially overdue, which causes a slowdown in the period of its turnover. As a result of unjustified increase in debtors' debts, there is a decrease in the liquidity of current assets, a slowdown in the turnover of current assets, an increase in accounts payable and a reduction in own sources of financing current activities.

The slowdown in the turnover of current assets is due to the insufficient use of financial instruments that accelerate the turnover of current assets invested in settlement liabilities: promissory notes, factoring and other instruments.

We group the factors according to the degree of their impact on the components of current assets as follows.

1 The following factors have a decisive influence on all components of current assets: the regulatory framework, the state of economic development, the level of competition in the industry, the professional level of staff, the competitiveness of the company, accounting policies, organizational culture. This allows us to conclude that it is necessary to pay the most attention to these factors.

2. Significant impact on all components of current assets or partially have the following factors: the state of the life cycle of the industry, the supply of raw materials (affects inventories), demand for products (affects finished products and receivables), production technology (affects inventories), competitiveness of the company (affects

receivables, working capital and current financial investments), sales policy (affects receivables and working capital).

3. The following factors have a significant impact: the stage of the life cycle of the company, the supply of raw materials (for finished products, receivables and working capital), demand for products (affects inventories), production technology (for working capital), sales policy (affects inventories, finished products).

4. The following factors have a slight impact on the components of current assets: the interests of owners, supply of raw materials (affects current financial investments), demand for products (affects working capital and current investments), production technology (affects receivables, current investments), sales policy (affects current investment).

Summarizing the above, in our opinion, we can say that the optimal use of factors influencing current assets, taking into account the outlined degrees will allow in practice to significantly increase the efficiency of economic activity of companies.

2.2.6 Relation between the innovativeness of the company and working capital

An important role in increasing the innovative activity of companies is played by the selection and implementation of the appropriate strategy of innovative development of the company. To determine the future strategy of the company requires information on the magnitude of innovation potential and the level of its use. Monitoring and assessment of the level of innovation potential is an urgent task, as its solution allows to make strategic and tactical decisions on the innovative development of the company and the development of its sustainable competitive advantages.

Assessment of innovation potential makes it possible to analyze the financial stability of the company to innovative development and determine the innovation strategy. The introduction of new technologies in the company without prior assessment of its innovative potential can have negative consequences. The company may not have enough funds to complete the project, which will negatively affect the provision of current production and economic activities or even lead to the cessation of the innovation project. The delay in the implementation of innovations leads to an increase in work in progress, which is undesirable, and is regarded as an irrational use of invested capital.

The criteria for assessing the innovation potential can be taken:

1) energetic, flexible leadership, able to take risks;

2) a progressive organizational structure of management, focused on working in the market conditions;

3) high reputation of the company and its products from consumers and business partners;

4) the availability of information on trends in consumer needs and demand, the ability to identify and forecast future needs and demand;

5) good knowledge of the capabilities and potential of competitors;

6) the availability of patents for technical solutions and technologies in the selected field of activity;

7) access to the latest achievements of science and technology in the chosen field of activity and related;

8) human resources (scientific, engineering, labor);

9) high quality products and high production culture;

10) reserves of production areas and capacities, etc.

In economic theory and economic practice to solve problems of analysis of economic opportunities of companies (innovation potential) is widely used method of assessing financial stability, which characterizes the ability of the economic entity to ensure the production process. The most common indicator of financial stability is the excess or insufficiency of sources, funds for the formation of stocks and costs. To characterize the sources of inventories and costs use several indicators:

If the existing methodology includes costs associated with the development and implementation of new and / or improvement technologies, it will provide an answer to the question: will the company be able, along with the formation of resources needed for current production and economic activities, to implement the chosen innovation strategy? development?

It should be noted that the activity of innovation (effective use of innovation potential) of the company is influenced by the following factors:

– shortage of financial resources;

– mass emigration of skilled labor;

– deterioration of the material and technical base of scientific and research centers;

– imperfection of the legislation regulating innovation activity;

– lack of technology transfer mechanism;

– high degree of physical and moral wear of the main equipment;

– imperfection of the methodology for evaluating the effectiveness of innovative projects;

– reluctance of banks to provide soft loans to finance innovative projects;

– underdevelopment of venture business institutions;

– lack of target and regional funds to support innovative entrepreneurship;

– reducing the prestige of scientific activity in society;

– reduction of funding for education and science.

These factors inhibit the development of the company's innovation potential. To overcome the impact of negative factors, it is necessary to take measures both at the state level and at the company level. For example, one of the directions of economic reform is the transformation of the economic mechanism on a new scientific and technical basis. World experience shows that one of the key factors in the intensity of structural adjustment of the economy is venture innovation. The development of innovations requires significant financial investment, with a long payback period, high level of risk and uncertainty in obtaining the desired end result, thus necessitating the solution of financial and credit security of venture business.

2.2.7 Methods of calculation and adjustment of the FCF within the company evaluation

In theory and practice questions have long been raised about the definition of an indicator that could be used as the main target and a criterion for the successful operation of the company. But so far no such indicator has been found. As practice shows, the financial and economic condition of the company depends to a greater extent not on the amount of profit, but on the ability of the company to pay its liabilities on time, ie on the liquidity of assets. In turn, the liquidity of assets depends on the real cash flow of the company, which includes working capital inflows and outflows. Therefore, the efficiency of economic activity, stable financial condition can be achieved only with sufficient and coordinated control over the movement of working capital, cash, changes in cash flows and profit formation of the company. The firm’s free cash flow (FCF) represents the cash available to investors—the providers of debt (creditors) and equity (owners)—after the firm has met all operating needs and paid for net investments in fixed assets and current assets (Gitman, Lawrence, Zutter, Chad. 2014)

Free cash flow can be defined as:

FCF = OCF - Net fixed asset investment (NFAI) - Net current asset investment (NCAI)

The movement of money is the primary basis of the term Cash flow, resulting in finance, ie cash relations, cash funds and cash flows. The category of "cash flow" in domestic science, in domestic legislation and scientific publications is revealed in different ways.

Considerable attention to the concept of money and their movement has been paid since the beginning of the theoretical foundations of economics. The reasons for this interest were substantiated in his works by JM Keynes, highlighting among them: routine, caution and speculation.

The general model of valuation of equity (share) of the company takes the following form:

FV = PV (CFo) – Net Debt – PV (CFDIV) + NA, (11)

where FV is the fundamental intrinsic value of share capital;

PV (CF0) – the current value of cash flow generated by the company in the course of its core business;

Net Debt – current value of net debt;

PV (CFdiv) – the current value of the flow of dividends on preferred shares; NA - the current value of non-operating assets of the company, ie those assets that are not directly involved in the creation of fixed assets (eg, investments in non-core businesses, the purchase of marketable securities).

It should be noted that non-operating assets in formula (11) are valued at current book value, which implicitly means the equality of the specified value and the current value of all future income and expenses associated with these assets.

This assumption seems quite reasonable due to the fact that the forecast of cash flows from non-core assets is quite complicated, and therefore unreliable. The forecast of dividend payments on preferred shares can be obtained quite simply in the case when dividends on shares of this type are defined as a fixed percentage of the nominal value of the share. Otherwise, the amount of dividends will be determined by the projected values of net income and the dividend policy developed by the company.

The main element in equation which requires additional action for the calculation, is the current value of cash flow generated by the company in the course of its core business or simply - the cost of core business. The cost of operating activities is equal to the present

value of the expected future free cash flow (FCF). In turn, free cash flow equals profit after tax from operating activities plus depreciation of fixed assets (since depreciation is a non-monetary deduction that reduces net income) minus gross investment in fixed assets and working capital.

FCF = Operating Cash Flow – Capital Expenditures (12)

Note that working capital means the difference between current assets involved in operating activities and interest-free debt, ie the part of current debt that is not related to liabilities to suppliers of financial resources of the company.

Free cash flow does not include any cash flows related to financing - in particular interest and rent payments and dividends. The valuation model uses free cash flow, as it represents the cash generated in the company's core business and available to all suppliers of capital - both debt and equity. In this regard, this type of cash flow is called free cash flow to the firm (FCFF, free cash flow to firm), emphasizing that it is distributed among all agents who finance the company's activities. In contrast to this flow, cash flow, which accounts only for the share of owners of ordinary shares of the company, is called free cash flow to equity (FCFE, free cash flow to equty).

Considering cash flow as the sum of funds available to all categories of capital suppliers, the discount rate should reflect the opportunity cost of all sources of capital, weighted by the relative contribution of each to the company's total capital. Therefore, the weighted average cost of capital (WACC) can be used as a discount rate.

It is important to note that funds are the most mobile and scarce part of the company's current assets. Effective cash management in the short term depends on optimizing working capital, net income, net cash flow and current liabilities. In the strategic aspect, the effectiveness of cash asset management depends on more global relationships: the volume and structure of working capital, non-current assets, own sources of capital and reserves and all liabilities of the company necessary to ensure the normal production process, balance sheet liquidity, financial stability and sales goals of company development.

2.3. Analysis of the working capital

2.3.1 Challenges in working capital management

The management of the company's working capital is a priority in the implementation of production activities, by reducing costs in the production process and reducing the need for financing at the present time.

The working capital of the company ensures the continuity of economic activity and forms a significant part of all assets. The structure of working capital, their composition and sources, largely determine the financial stability of the company and have a significant role in improving the efficiency of economic activity.

The main problems of working capital management at the company are:

- lack of own circulating assets at the company, a significant share of borrowed capital;
- difficulties in planning the amount of working capital;
- decrease in inventory turnover in the operating cycle;
- growth of short-term liabilities, due to a lack of own working capital and the attraction of short-term credits and loans in order to avoid a decrease in the liquidity of the company.

As a consequence of these problems, one can single out a decrease in production activity and a lack of support at the required level, which can lead to a significant decrease in the liquidity and financial stability of the company, and as a consequence to a decrease in the profit received from the sale of finished products.

The efficiency of the functioning of any company is impossible without rational investment of working capital and the availability of its own working capital, as well as without its effective placement in separate elements of working capital, the structure of which significantly affects the financial condition of the company and the solvency and liquidity of its assets.

The current state of companies is characterized by an unstable financial situation, inconsistency between the liquidity indicators of the balance sheet and, accordingly, an illiquid balance sheet and problems with the possibility of urgent repayment of the most urgent obligations.

Another problem of the modern functioning of the company is the absence or a small amount of its own working capital invested in current assets, does not allow the normal financing of stocks and requires the search for additional sources of financing.

Therefore, the mechanism of effective management of the working capital of a company is impossible without a preliminary and detailed analysis of the state, dynamics, structure, efficiency of use of both individual elements of working capital and them in general, as well as an assessment of the impact of their turnover on the liquidity of current assets confirming the relevance of this study, its main directions and meaning.

2.3.2 Development of working capital over time

When assessing the dynamics of current assets, it is necessary to take into account the positive consequences of their growth for the financial condition of the company. However, the absolute and relative growth of the working capital in the structure of the property of the company, caused by the influence of inflation factors, a slowdown in the turnover of the working capital, is assessed negatively.

When assessing the absolute and structural dynamics of working capital, it is necessary to take into account the following.

The growth of inventories may indicate a number of positive and negative aspects in the work of the company. The expansion of the scale of economic activity is positive; increasing the level of business activity of the company; the desire to save money from depreciation due to inflation and underdeveloped stock market. The negative aspects include the shortcomings of the material supply department, the irrational management of production inventories, as a result of which a significant part of the capital is chaneled into current assets with the insignificant level of liquidity.

The growth of work in progress may indicate not only the expansion of the scale of activities and the growth of business activity, but also be the result of an increase in the duration of the production cycle due to a decrease in labor productivity, efficiency in the use of production facilities, low organization of production, insufficient level of technology and technology.

Many authors give different names to the same indicators or coefficients, others carry out calculations differently using data from different sources. Based on the research data, a methodology has been formulated that will make it possible to understand without difficulty how the financial condition of companies is analyzed, for what purpose, how to correctly draw conclusions and make informed management decisions.

2.3.3 The effect of working capital on the performance of the company

Profit and working capital are closely linked. Profit can be interpreted as the excess of the amount of money received from the sale of products over the amount of money used to produce these products.

Profit reflects working capital and non-working capital income received by the company for a certain period of time, which does not coincide with the actual working capital inflows. Profit is determined after the sale, not after the receipt of working capital.

Production costs in the calculation of profits are taken into account after the sale of products, not at the time of payment. And cash flow reflects the movement of these funds, and those that are not taken into account when calculating profits, namely: capital investments, taxes, fines, payments to creditors, loans.

There are a number of reasons as a result of which the company can be profitable and be insolvent and on the contrary be solvent and have a loss. The following reasons may be:

1. The profit indicator is affected by the use of different methods of reflection in the accounting of individual business transactions (eg, methods of writing off material costs of production, methods of depreciation), while the cash flow rate - it does not affect.

2. When calculating the profit for the analyzed period, large capital investments made in this period are not taken into account (they are written off in parts as a result of depreciation over the useful life of the object for which they were spent), and as part of working capital flow they occupy a large share.

3. Reduce the amount of profit non-monetary costs (depreciation, value of fixed assets and non-current assets that have been disposed of) - this is not an outflow of funds.

4. One of the sources of cash flow is equity and debt capital, and when calculating profits are taken into account only the amounts that characterize the payment of these resources (interest, dividends).

5. The amount of cash flow is affected by changes in working capital (inventories, receivables and payables). At the same time, the growth of inventories and receivables lead to an outflow of funds, and the growth of accounts payable - to the inflow, and vice versa.

Profit, cash flow, and working capital are important categories that compete with each other, have differences, and are closely interrelated. But the profit does not always adequately reflect the real financial condition of the company, the efficiency of its economic activity. In recent years, the role of cash flows has grown significantly because business owners want to see real cash rather than profit in the future. Cash flows are the basis for settlements between counterparties, they play an important role in the implementation of dividend policy, assess the feasibility of real and financial investments.

Analytical part

1.1 Introduction to the company

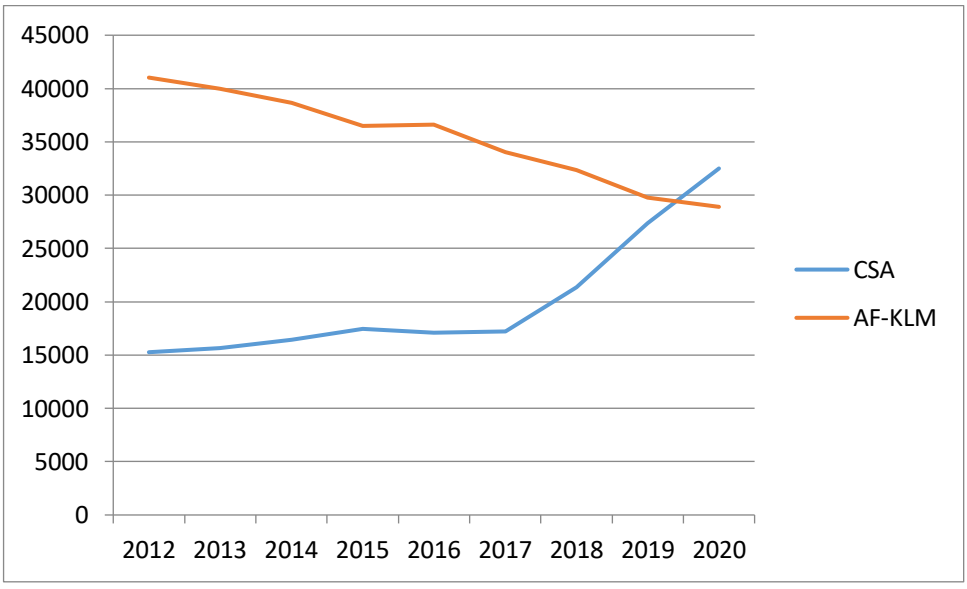
Air France-KLM (below AF-KLM) – Franco-Dutch holding airline based on the merger between Air France and KLM Royal Dutch Airlines, headquartered at Charles de Gaulle airport;

In 2004, Air France-KLM Group was founded as a result of the merger between Air France and the Netherlands-based KLM. Following the merger, this European holding airline has become one of the largest airlines in the world in terms of revenue, passenger-kilometers and passenger fleet size. The holding airline is owned by the following airlines - Ak France, KLM, Transavia, CityJet, VLM Airlines. The airline also has stakes in Martinair, Kenya Airways and Alitalia.

China Southern Airlines (below CSA) – The Chinese airline, headquartered in Guangzhou, Guangdong Province of China, is the largest Asian airline by fleet size, the largest air carrier in Asia, and is also the 7th largest airline in the world in terms of scheduled passenger traffic. kilometers. And the company is also China's largest air carrier in terms of the number of passengers carried.

The official reports of these airlines for the past 9 years show that, in general, the upward trend is supported by the total assets of airlines, EBIT, and also net profit. Such statistics also prove a new developing period.

Figure 1 – Total assets of airlines from 2012 to 2020, USD million



Source: results of own research based on annual statement report

In terms of asset diffusion, the balance sheets show that the share of non-current assets of these airlines exceeds 60% of total assets. CSA has the maximum share of non-current assets – 88.81%. This distribution of assets is consistent with the industry specificity – the lack of quick liquidity. In terms of the state of liabilities and equity capital, according to the comparison of data in the balance sheets, with the exception of CSA, the share of long-term liabilities is greater than short-term liabilities, and the share of short-term liabilities is greater than equity. AF-KLM faced the risk of bankruptcy, i.e. total liabilities exceeded total assets, this leads to negative equity capital.

In the course of analyzing the statements on financial results of the last 9 years, the reports show that on average, sales revenue accounts for more than 90% of the total revenue of airlines, for CSA and AF-KLM the average is 99.66% and 99.96%.

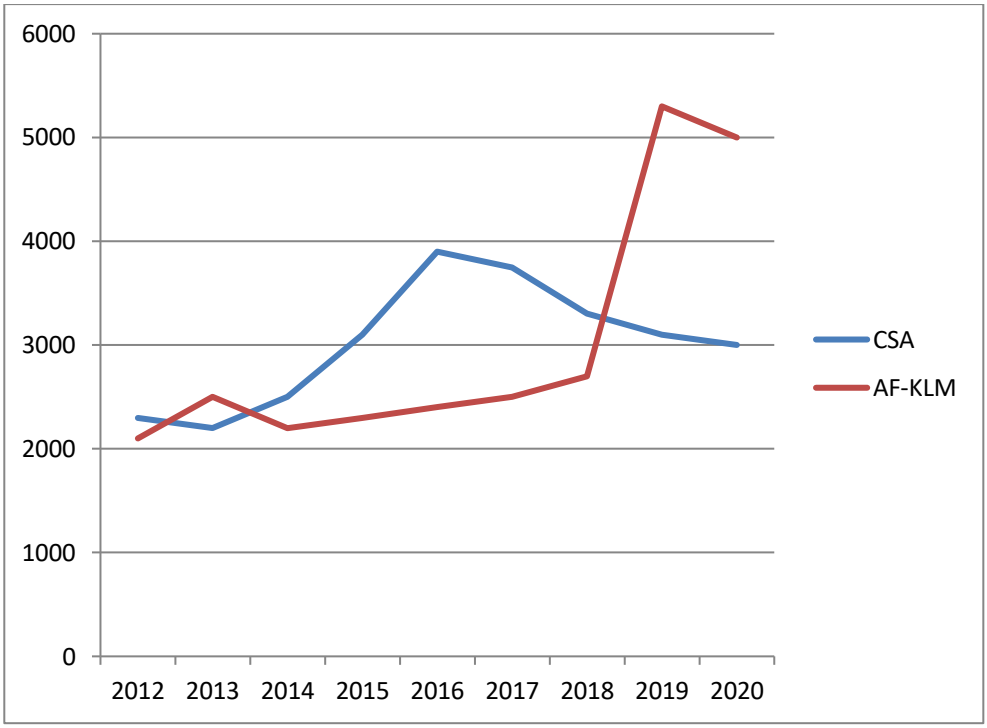
Comparing sales revenue to operating expense, the line graph illustrates that the ratio moves from 0.8 to 1.11, except for CSA in 2017 and 2018, when operating expenses suddenly dropped. Consequently, there is confidence that the sale of air tickets and services is the most important source of revenue for airlines and aviation is an industry with high costs and low operating margins.

Based on the above research, accelerating liquidity, easing liabilities to reduce bankruptcy risk and increasing profitability are becoming key management decisions.

1.2 Indicators: revenues, profit before and after taxes, investment to the long-term assets, discount rate

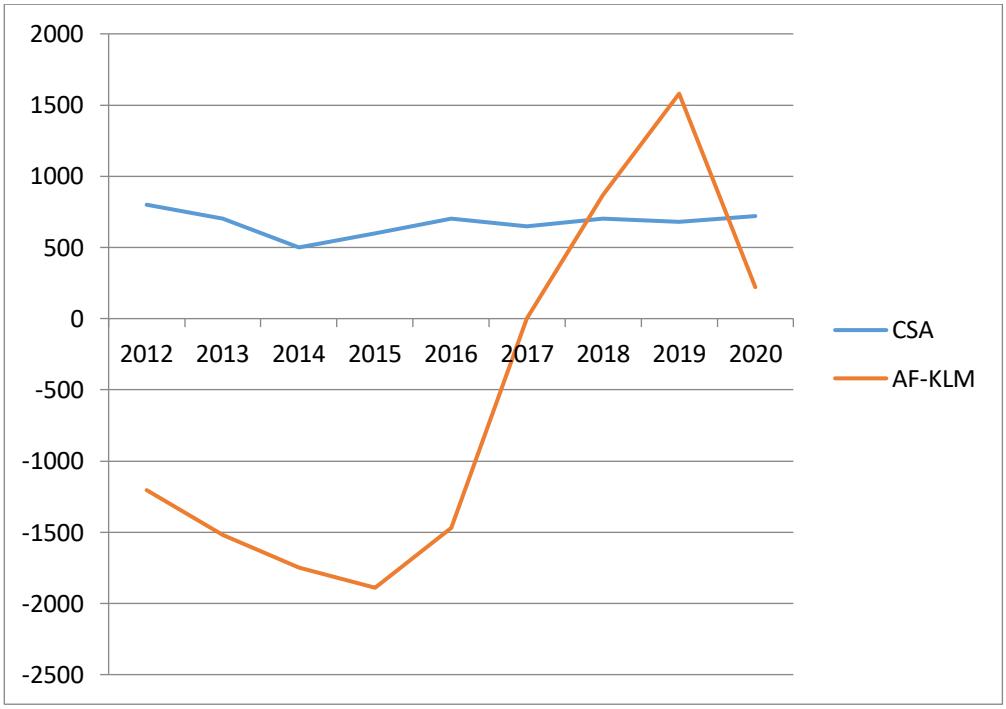
During the study of the absolute values of EBITDA and net profit, it was found that in general, from 2014 to 2020. EBITDA and bottom line are showing an upward trend, which is in line with IATA's conclusion of a boom since 2012. Here I have to explain the reason for choosing EBITDA over EBIT.

Figure 2 – Airlines EBITDA chart from 2012 to 2020, USD million



Source: results of own research based on annual statement report

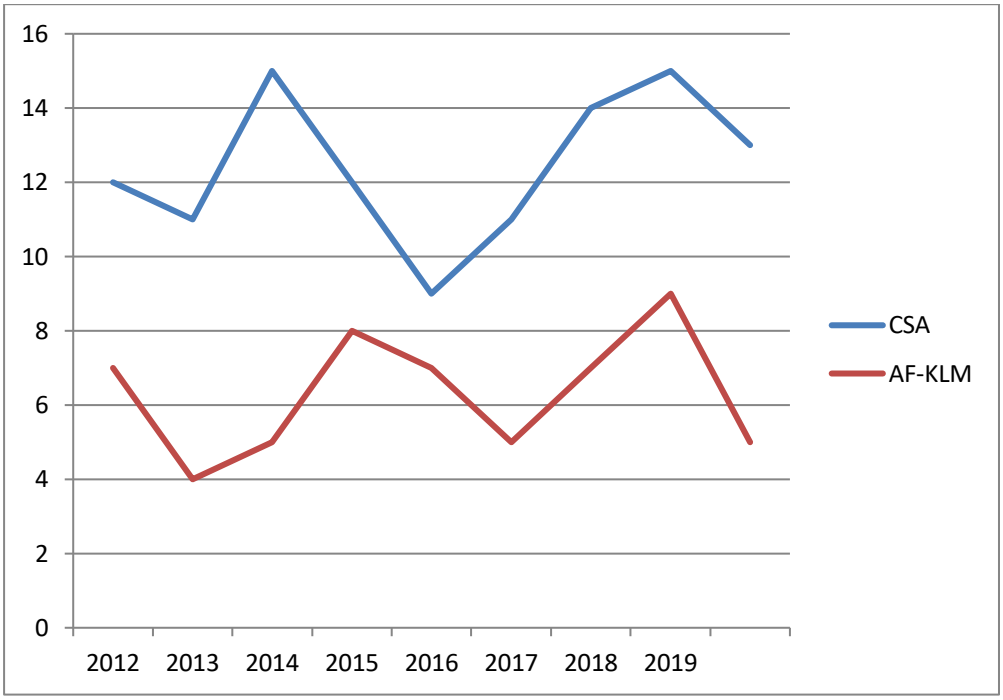
Figure 3 – Schedule of airlines' net profit from 2012 to 2020, USD million



Source: results of own research based on annual statement report

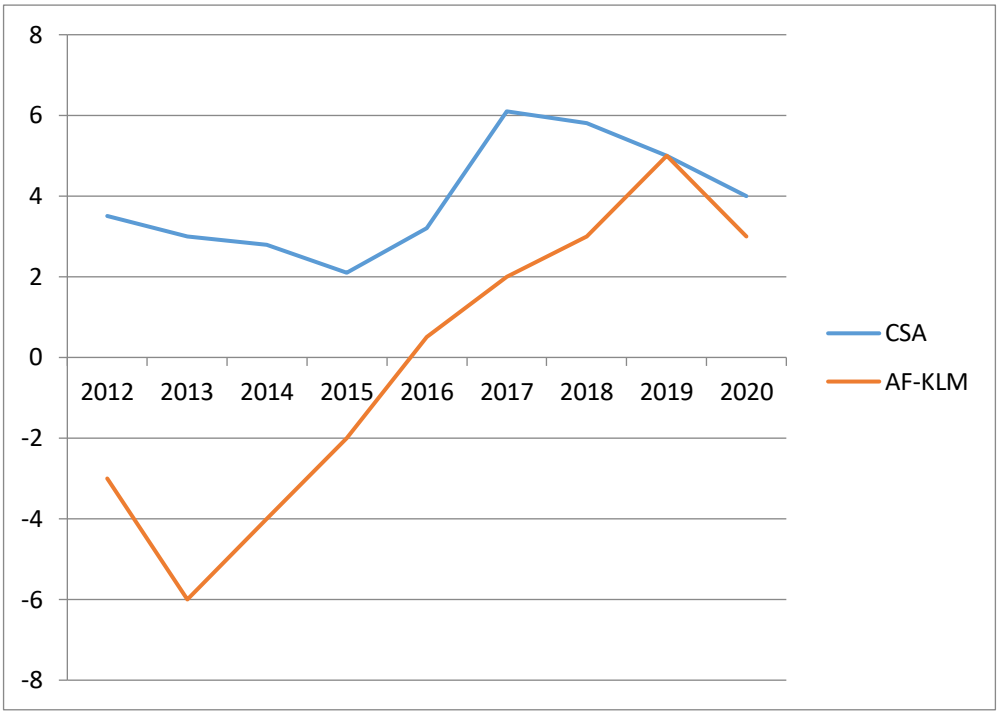
The surveyed airlines are located in different countries and regions, they have different accounting policies and different depreciation methods. Airlines are characterized by a large volume of non-current assets, therefore, different accounting policies and different depreciation methods lead to significant differences. To minimize such a difference in order to more objectively compare the profit from the main operation, EBITDA was chosen.

Figure 4 – Airline sales profitability from 2012 to 2020, %



Source: results of own research based on annual statement report

Figure 5 – Sales profitability chart from 2012 to 2020, %



Source: results of own research based on annual statement report

ROI is a ratio of profitability that shows how much of an organization's revenue is profit. It is usually calculated as the ratio of net profit for a given period to cash sales for the same period. Profitability formula:

Profitability of sales = Net profit / Revenue

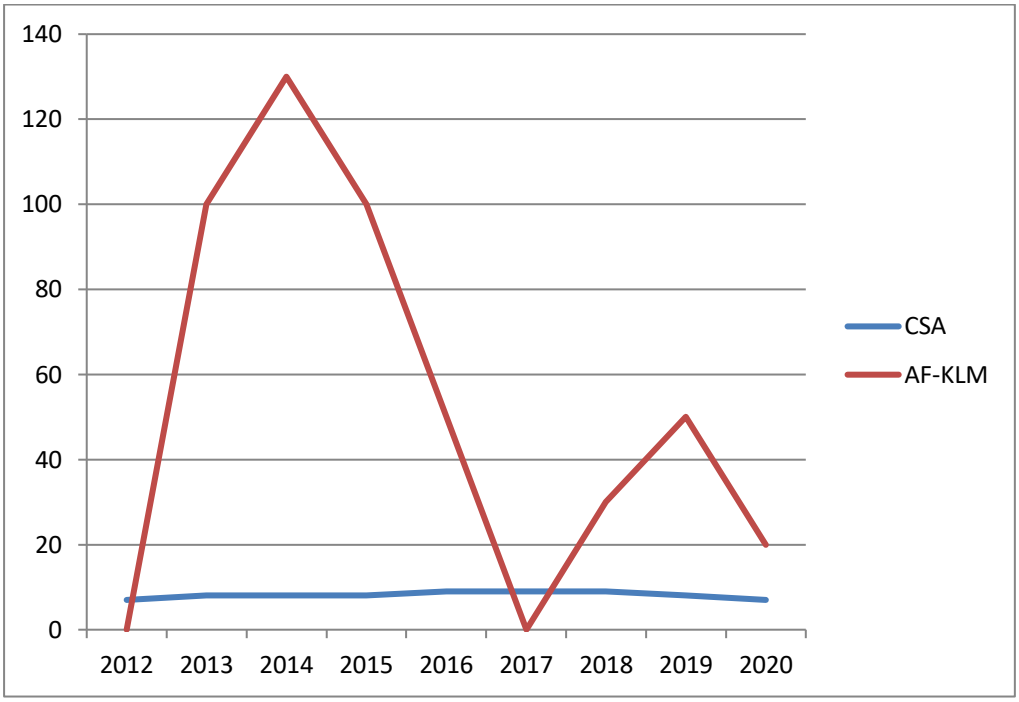
Using the profitability of sale, you can determine the profitable or unprofitable activities from the main business of the enterprise. The normal value of the ROI is determined by the industry and the size of the enterprise.

Return on Equity = Net Income / Equity

In general, the higher the return on equity, the better and more profitable for owners and investors. However, I have to remind you of the Dupont formula, which I already described in the second chapter. He decomposes the return on equity into three conceptual components — profitability of sale, asset turnover, and financial leverage. According to the

Du Pont formula, a high financial leverage can be a factor in high return on equity, in which case a high return on equity cannot represent a high profitability of an enterprise.

Figure 6 – Airline return on equity from 2014 to 2020, %



Source: results of own research based on annual statement report

For AF-KLM, the sales profitability trend does not coincide with the ROE trend, for example, the peak return on equity appeared in 2016, and this year the airline was unprofitable. 2014 to 2020 the return on sale curve is at a lower level and shows an upward trend, while the return on equity is fluctuating. In conjunction with financial leverage, I noticed that the engine that created the highest ROI in 2016 for AF-KLM was negative equity and loss, not profit. This is definitely a negative signal for airlines. Another peak in AF-KLM's return on equity in 2019 resulted from an increase in the return on sale. This proved that the operational performance of the two airlines has improved.

With respect to the CSA, the trend in the return on sale coincides with the trend in the return on equity. This demonstrates that core business revenue is the main source of return on equity. This is a positive result for airlines.

The ROA and ROE charts have already shown that 2015 was a sad year for AF-KLM due to a loss. To increase market saturation in order to increase revenues and profits, the airline's management made management decisions about marketing strategy and customer experience promotion. The marketing strategy consists of an advertising campaign to

promote corporate culture, finance art exhibitions, etc. The promotion of the consumer experience includes improved services like the “Chef On Board” program, the introduction of a more comfortable atmosphere at an affordable price, like more comfortable pillows and a multi-position footrest. These management decisions not only brought new customers and increased loyalty to AF-KLM, but also increased profits by introducing high value-added services.

CSA is fixed in its core business and is receiving low, but steadily growing profitability. According to the description of the official reporting of the three airlines, in order to increase profitability, the focus of airline management decisions is located in three directions, incl. in enhancing marketing to attract new customers, in building loyalty of existing customers by providing high quality and personalized services, in increasing the added value of services to increase profits.

Analysis and research demonstrates that among the studied airlines, the main source of profit is the main business, i.e. sales of air tickets and services, therefore, management decisions to increase profitability are focused on expanding operating revenues and reducing costs. Due to the need for huge material and human resources and difficult predicted external factors, for example, changes in the price of oil, foreign exchange risk, cost reductions on a huge scale are almost impossible, thus airlines pay more attention to expanding revenue by establishing new airlines to capture market share. , strengthening the marketing strategy to attract customers, building loyalty of existing customers through the provision of quality and personalized services with high added value and other methods, brings the airline a new point of increasing revenue and profit.

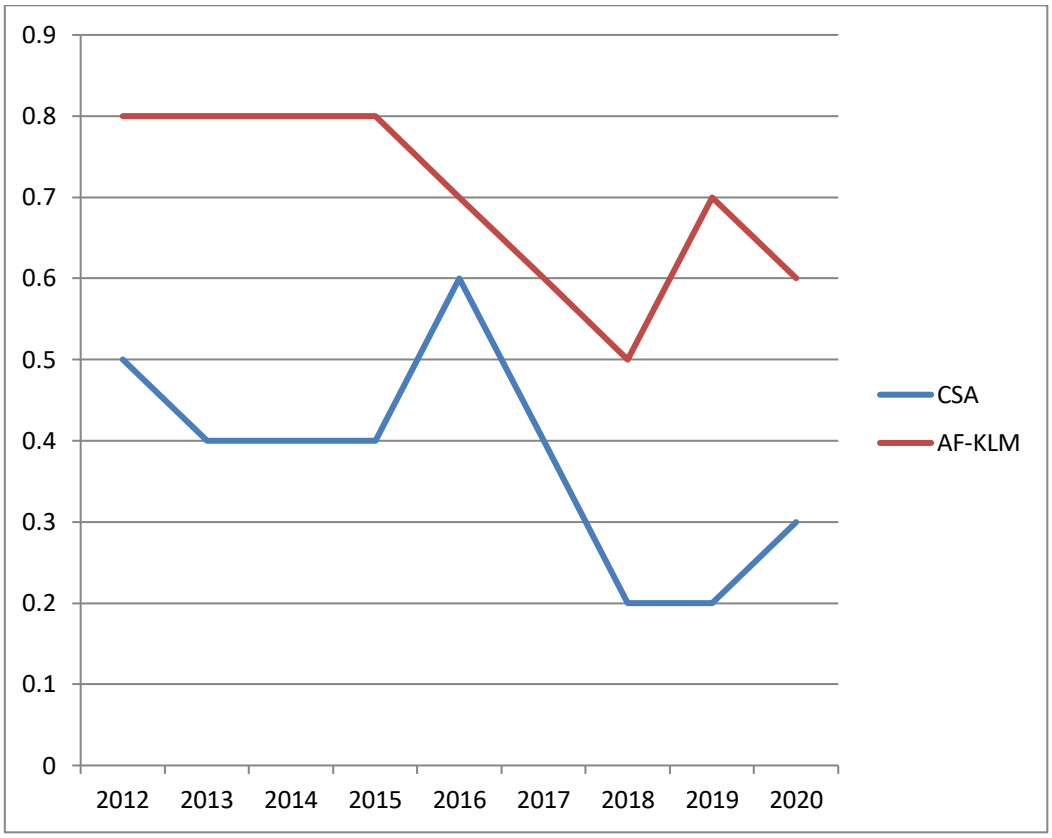
1.3 Investment to working capital

3.3.1 Initial evaluation

When analyzing the company's cash flows, we pay more attention to two ratios — current liquidity and the money cycle.

Current liquidity is one of the most important indicators of liquidity. It is a relative indicator of the ratio of current assets to short-term liabilities. Using this ratio, you can assess the ability to repay short-term liabilities and solvency.

Figure 7 – Airlines' current liquidity from 2012 to 2020



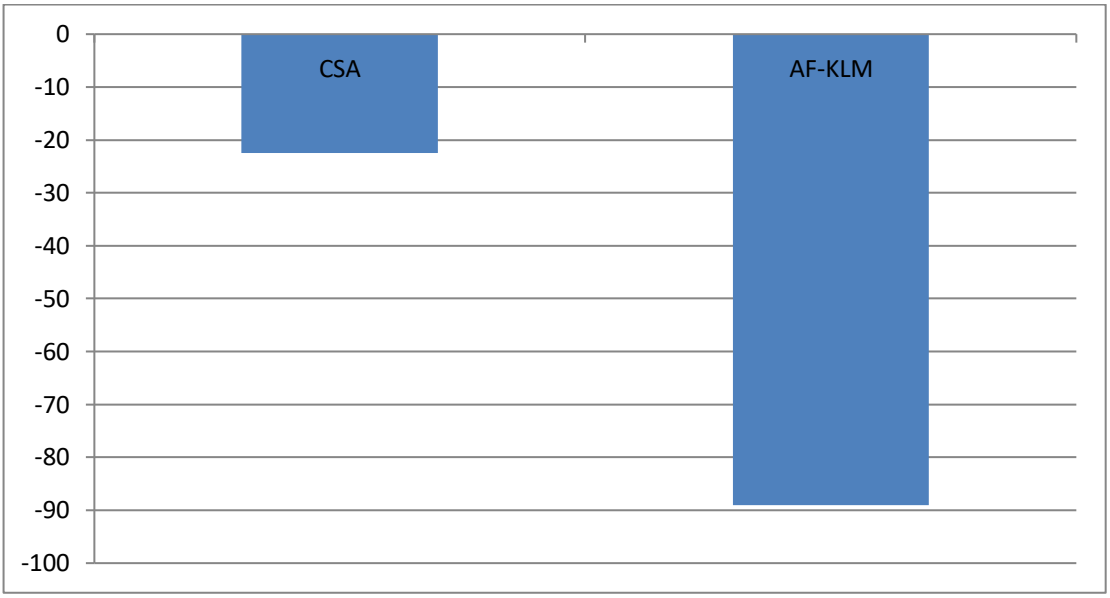
Source: results of own research based on annual statement report

In general, the current liquidity in the last 9 years shows a trend with a steady decline. During 2016 and 2017, there was a holistic decrease in current liquidity. After analyzing current assets, it can be determined that since 2015, most airlines began to decline in current assets, this decrease creates a decrease in current liquidity. In 2016, a low value appeared due to a decrease in current assets, and in 2019 a high value appeared due to an increase in current assets. CSA's current liquidity has always been below the average of eight airlines since 2012, but there has been a lot of movement in 2016 and 2017.

The cash cycle is the period of circulation of funds from the moment of acquiring resources (raw materials, materials, labor) for them and until the moment the finished product is sold and money is received for it. This period is expressed in days and reflects the effectiveness of the organization's working capital management. According to the definition, the calculation of the cash cycle consists of three parts: Cash cycle (in days) = Inventory turnover in days + Accounts receivable turnover in days - Accounts payable turnover in days.

In general, the lower the value of the money cycle in days, the more efficient the cash flow management, and the better for the enterprise.

Figure 8 – Average airline cash cycle from 2012 to 2020, in days



Source: results of own research based on annual statement report

The total cash flow of the company is mainly influenced by the dynamics of income from sales of products, the economic profitability of assets and the amount of interest paid on borrowed funds.

The change in net working capital depends on the need for working assets, revenue, on the sale of products. It should be noted that negative cash flow does not always indicate an unsatisfactory forecast for an enterprise. Rapid growth in production requires more money, so a developing company often has a negative cash flow, which is covered by borrowed funds (loans).

In the chart of the average CCC it is clear that AF-KLM is the lowest, so there is confidence that AF-KLM's cash flow depends on the loan the most.

Based on these changes in liquidity and cash flows, airlines have developed different plans and made appropriate management decisions in their position and strategy.

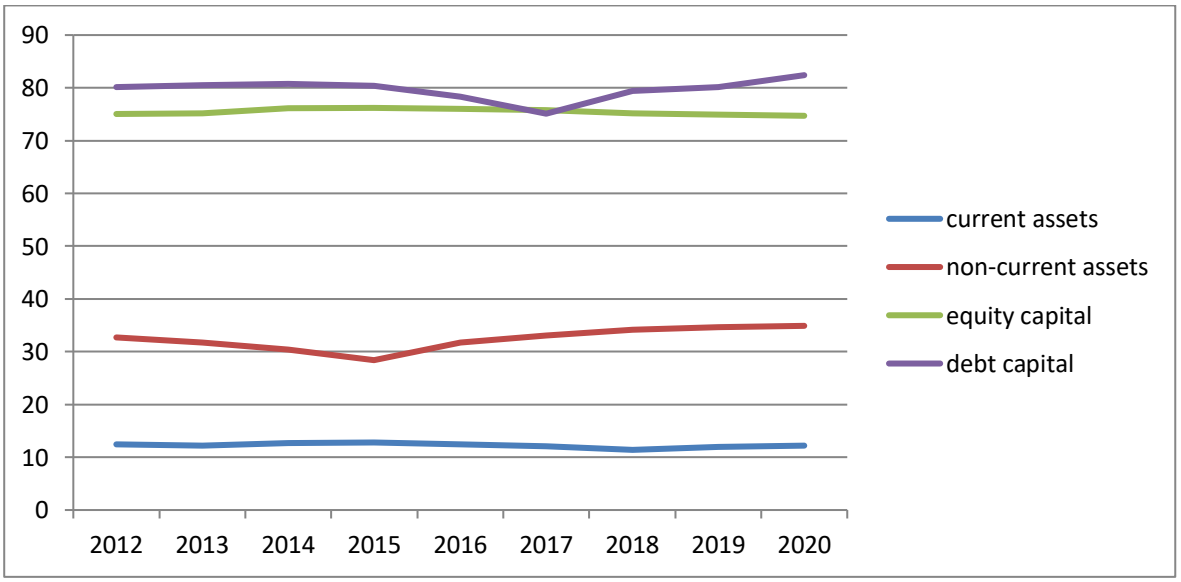
CSA had a relative peak in liquidity in 2016. By examining the official statements for 2017, a huge number of liabilities, especially long-term liabilities, were paid off in cash and cash equivalents, which leads to a decrease in current assets. There is reason to believe that after several years of relatively stable liquidity, the company has decided to reduce its liabilities, especially long-term ones, in order to reduce its financial leverage.

We are talking about AF-KLM, in 2016 it faced the only risk of bankruptcy for 9 years, i.e. debt capital exceeded total assets. At the same time, its liquidity also fell to its lowest value. In the section on risk and risk management of the official accounts for 2016, it was explained that the airline financed its capital with bank loans, these loans were secured by aircraft and equipment. This is due to the negative financial result for the airline. Against this background, the airline has developed a special financial policy within the framework of risk management, for example, all expected and potential cash flows must be checked regularly, including operating cash flow, debt interests, cash outflow must be ensured 60 working days in advance.

Thus, when an airline has a satisfactory and stable cash flow, it most often makes managerial decisions to expand the scale of operating, financial and investment activities, for example, the purchase of aircraft and equipment, making a short-term investment, and paying off debts. If the airline has a cash flow deficit, then the management makes management decisions to monitor the current cash flow, for example, establishing a special reserve, and increasing the source of funding, like looking for bank loans.

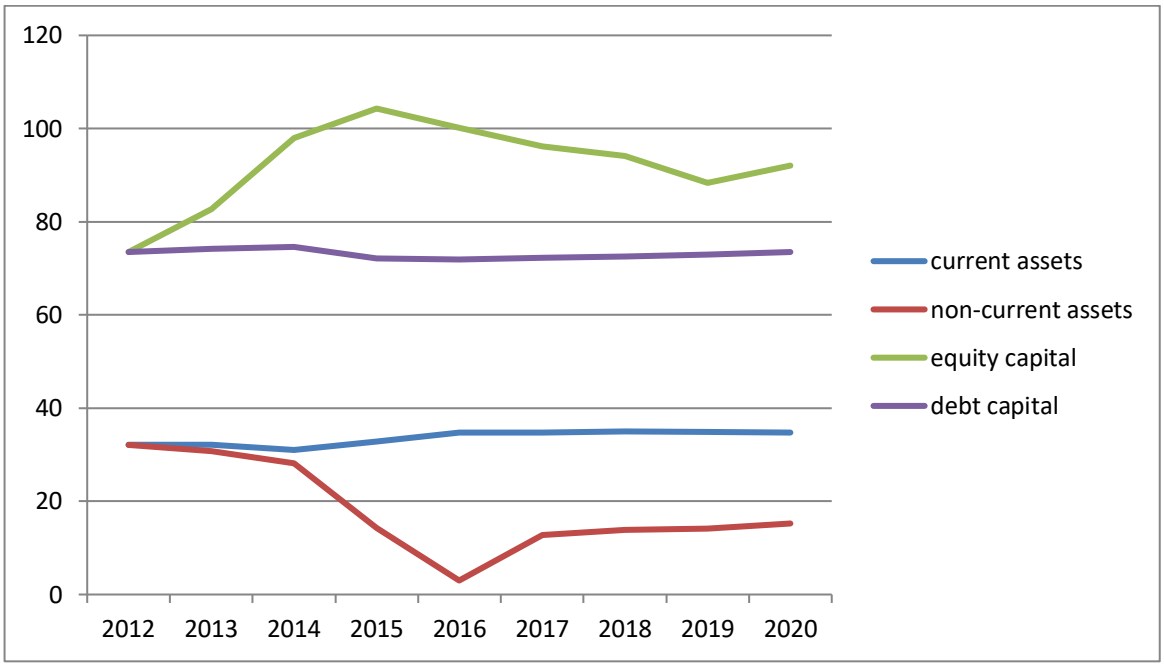
In addition to solving the problem of liquidity and optimizing the use of cash flow, easing obligations to reduce the risk of bankruptcy and optimizing the structure of obligations is also one of the most important tasks in modern cooperative management.

Figure 9 – Schedule of current assets, non-current assets, equity and debt capital of CSA from 2012 to 2020



Source: results of own research based on annual statement report

Figure 10 – Schedule of current assets, non-current assets, equity and debt capital of AF-KLM from 2012 to 2020



Source: results of own research based on annual statement report

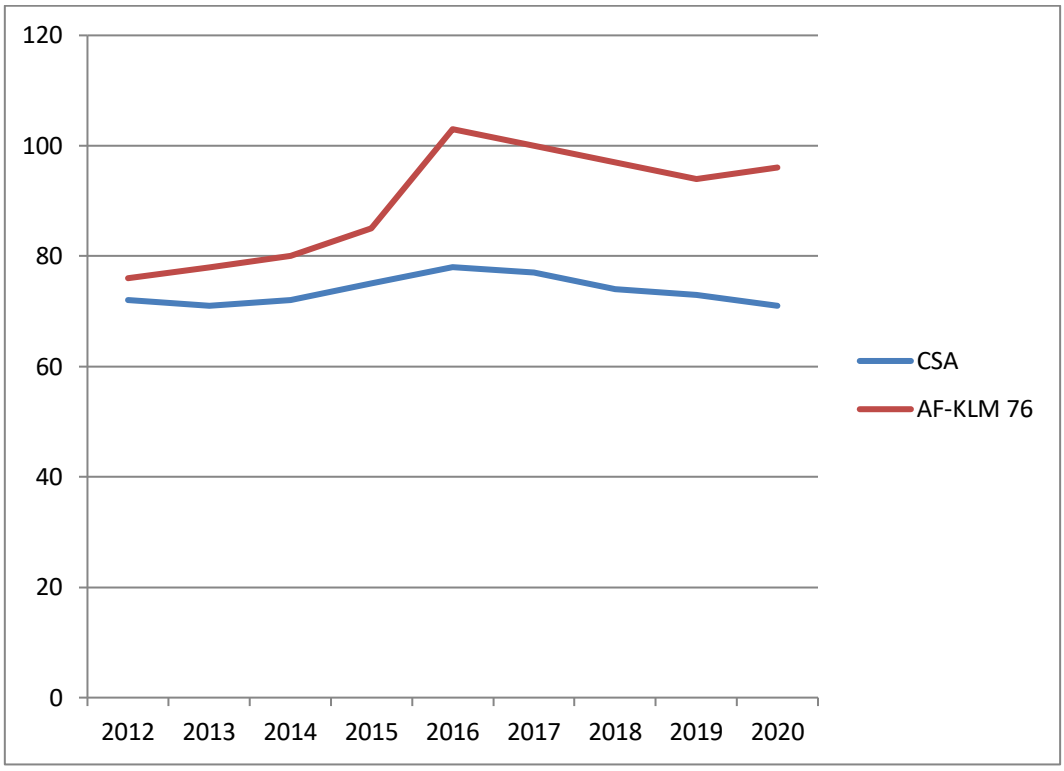
The above curves of the graphs on the distribution of current assets, non-current assets, equity and borrowed capital from 2012 to 2020 allow us to determine that with the exception of CSA, the share of borrowed capital exceeds non-current assets. Looking deeper into short-term and long-term liabilities, I noticed that the two airlines have more long-term assets than short-term ones. Therefore, there is confidence that the airline is developing largely due to heavy commitments. The above graph illustrates that CSA's borrowing position is better than AF-KLM's. The amount and share of non-current assets of CSA for 9 years is always more than the borrowed capital. Thus, for CSA, the credit crunch and risk of bankruptcy are less than for AF-KLM.

In order to conduct a deeper quantitative analysis of the borrowed position, in this section I select the financial dependence and financial leverage ratios as analytical objects that are most often used to analyze financial stability.

The financial dependence ratio characterizes the ratio of the organization's borrowed capital to total assets. The sum of the coefficient of financial dependence and the coefficient of autonomy is equal to one. The optimal value is considered to be 0.5, and the normal value

shifts from 0.6 to 0.7. By the nature of the aviation industry and IATA statistics, the overall leverage ratio for the airline is higher than in other industries and fluctuates around 0.7.

Figure 11 – Airline financial dependence ratio from 2012 to 2020



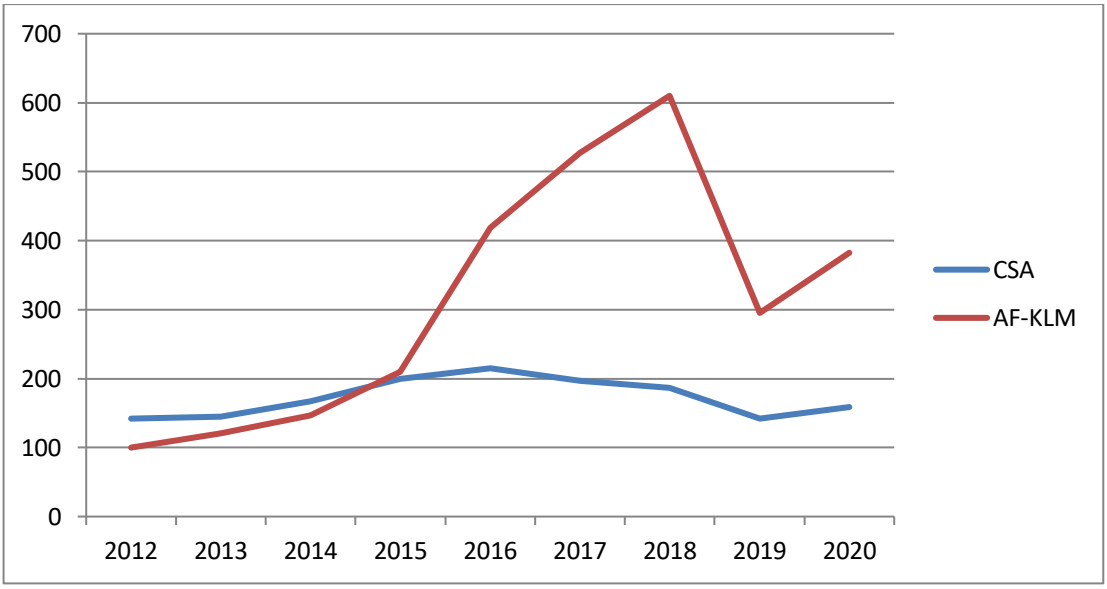
Source: results of own research based on annual statement report

If the financial dependence ratio exceeds one, this means the emergence of the risk of bankruptcy due to the fact that the borrowed capital is greater than the total assets. A too low leverage ratio refers to a poor ability to attract debt capital and a low opportunity to expand the scale of the business and increase the return on equity through the use of the effect of financial leverage. And if on the contrary, the development of the enterprise is more dependent on the loan, then the credit crisis and the risk of bankruptcy will be increased.

The above diagram illustrates the change in the leverage ratio of airlines from 2012 to 2020. CSA's financial dependence ratio is within the IATA normative level, that is, about 70%. AF-KLM has a relatively intense vibration.

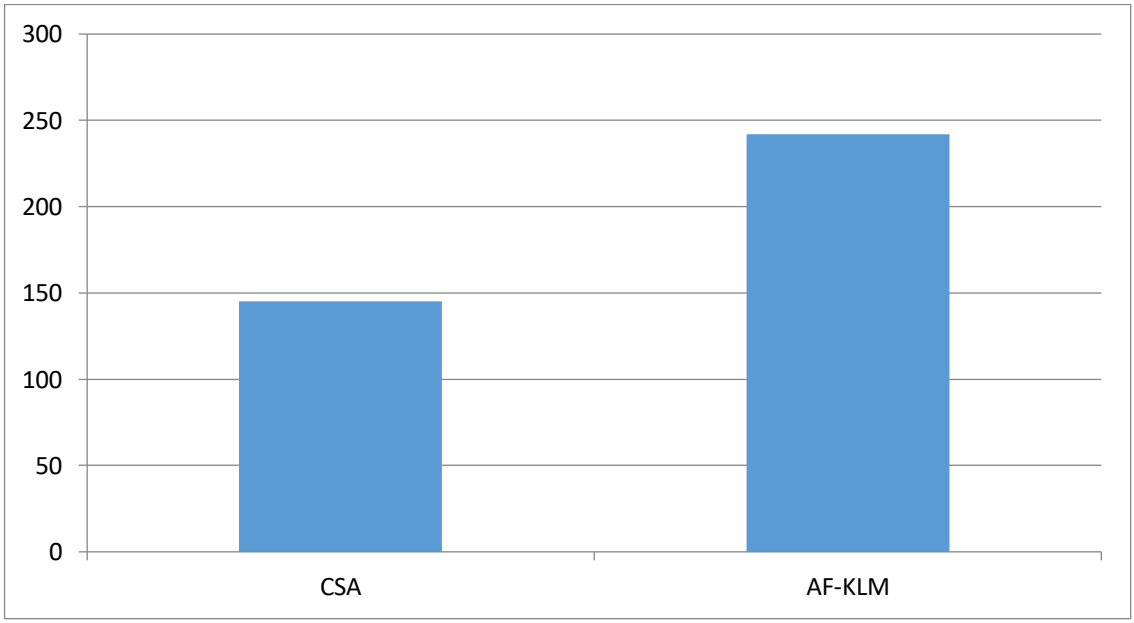
The ratio of financial dependence AF-KLM in the last 9 years has always been at a relatively high level with an increasing trend. The debt crisis appeared in 2014 due to the fact that the financial dependence ratio is more than one.

Figure 12 – Financial leverage ratio from 2012 to 2020, times



Source: results of own research based on annual statement report

Figure 13 – Average financial leverage



Source: results of own research based on annual statement report

The second indicator I have selected is financial leverage. By calculation, financial leverage is determined by the ratio of borrowed capital to equity. With large values of the coefficient, the organization loses its financial independence, and its financial position becomes extremely unstable. It is not only more difficult for such organizations to attract additional loans, but it is also easier to face the risk of bankruptcy. And if the company has

too low this ratio, then it lacks the ability to use financial leverage to increase profitability. At the current time, in general, the most common optimal value of the coefficient in developed economies is 1.5, i.e. total liabilities consist of 60% of borrowed capital and 40% of equity.

The above two graphs show the change in financial leverage ratios (fig. 12) and the average financial leverage ratio (fig. 13) of airlines from 2012 to 2020, with the exception of an unusually too high AF-KLM value in 2017 – 1654.58 and cases where the borrowed capital exceeds the total assets. It is noted that AF-KLM's financial leverage ratio is at the highest level.

For AF-KLM, until 2016, financial leverage was still at the industry average level, and after the bankruptcy crisis in 2016, financial leverage remains high.

Putting the two ratios together with other data, including changes in equity, assets, etc., I notice that AF-KLM's debt management and leverage changes more intensely than the others.

AF-KLM explained the main reason for the extremely high indebtedness in 2016 and 2017 in official reports. According to the statements, significant revaluation of defined benefit plans results in low equity capital. And the reason is the lower, compared to the previous year, the discount rate for calculating pension obligations. Non-monetary changes in pension liabilities, together with the level of plan assets associated with changes in actuarial assumptions (for example, the current low discount rate), should be recognized in the equity of the entity. Against this backdrop, the airline is modernizing its pension policy. The airline also spoke with cockpit and pilot alliances in 2017 and reached agreement with cockpit on a new retirement plan that would reduce balance sheet volatility and make room for investment. In addition, the decisions and actions the airline is taking to improve operating margins have also helped reduce leverage, incl. consolidation of the fleet and renewal of the fleet, increasing the effect of engineering support. With these management decisions, the airline's debt position and financial leverage has returned to relatively acceptable levels.

CSA maintains a relatively stable and acceptable level of financial leverage. During my research, I noticed that reducing leverage and debt risk by simply absorbing long-term and short-term liabilities is almost impossible, especially in industries with heavy assets like the aviation industry, the energy industry, so that the financing of these companies is extremely huge and a normal operation of these companies are more dependent on debt.

Thus, in order to reduce financial leverage and debt risk, in addition to repaying scheduled and early loans and borrowings, in practice, the company more accepts other special methods, which include the use of financial hedging instruments, an increase in the issue of shares, negotiations with banks or other credit institutions on regulation. interest rate, cost reduction to increase profitability, etc.

3.3.2 Optimization plan I

It is proposed to use factoring as the first measure to improve the efficiency of asset management.

As a second measure, it is proposed to assess clients from the point of view of certain types of risk.

Let us consider the individual components of credit risk within the framework of this method:

– legal risk – an example of calculating this risk based on the data of one of the existing debtors of the airline is presented in Table 1.

The total score will be 8 points (3 + 2 + 2 + 1) - we summarize the points given in column 3 of Table 1. We estimate the legal risk by dividing the resulting assessment by the maximum possible score:

Legal risk = 8/16 * 100% = 50%

Table 1 – Assessment of the legal risk of the airline's debtor

Parameter	Criteria for evaluation	Expert review
Debtor's organizational and legal form	Individual - 1 point, entrepreneur - 2 points, Limited Liability Company - 3 points, joint stock company - 4 points	3 points
Debtor's existence period	up to one year - 1 point, from one to five years - 2 points, from five to fifteen years old - 3 points, more than 15 years - 4 points	The debtor has been on the market since 2013. Score - 2 points
Debtor relationship period	up to one year - 1 point, from one to two years - 2 points, from two years to three years - 3 points, from three to five years - 4 points	Work with the debtor has been carried out since April 2016. Score - 2 points
Duration of the current contract	up to one year - 1 point, from one to two years - 2 points, from two years to three years - 3 points, from three to five years - 4 points	The current supply agreement is concluded for six months.
Total		Score - 1 point

Source: results of own research based on annual statement report

– financial risk – assessed by calculating the financial ratios of the debtor at the time of the conclusion of the contract. The calculation is made in table 2 in relation to the debtor. The data for the calculation were provided by the financial and economic department of the investigated airline.

Table 2 – Calculation of the level of financial risk of the airline's debtor

Index	Actual value	Rating scale	Points	Indicator weight	Calculation of the total of
Absolute liquidity ratio	0,09	3 - >0,2 2 - 0,05-0,2 1 - <0,05	2	0,05	0,10
Critical liquidity ratio	0,62	3 - >0,8 2 - 0,5-0,8 1 - <0,5	2	0,10	0,20
Current liquidity ratio	1,69	3 - >1,5 2 - 1,0-1,5 1 - <1,0	3	0,40	1,20
Coefficient of provision with own circulating assets	0,18	3 - >0,25 2 - 0,150,25 1 - <0,15	2	0,20	0,40
Return on sales ratio	0,19	3 - >0,1 2 - <0,1 1 - <0	3	0,15	0,45
Airline profitability ratio	0,12	3 - >0,06 2 - <0,06 1 - <0	3	0,10	0,30
Total	--		-	1,00	1,65

The total score, taking into account the weight of the indicators, will be 1.65 points. We estimate the financial risk by dividing the resulting estimate by the maximum possible score:

Financial risk = 1.65 / 3 * 100% = 55%

The total score will be 6 points. We estimate business risk by dividing the resulting assessment by the maximum possible score:

Business risk = 6/8 * 100% = 75%

The final indicator of the credit risk of the debtor is calculated using the formula:

Risk level = ΣRi * Vi,

where Ri is the assessment for the i-th type of risk;

Vi – coefficient of significance of the i type of risk.

The results of the business risk assessment using the example of one of the airline's debtors are presented in Table 3.

Table 3 – Calculation of the business risk level of the airline's debtor

Business Risk Indicators	Criterion value	Sign of a positive assessment	Points
Duration of work of the debtor in the market	3.5 years	More than three years on the market	1
Debtor's share in the market	The debtor is not a market leader	Market leader	0
Debtor's sensitivity to seasonal factors	Low sensitivity	Low sensitivity to seasonality factors	1
The presence of competitors in the market	The market is competitive	Favorable competitive position, no competitors	0
Product quality	High	Score at a high level, in line with competitors	1
Product range	Wide range of	Wide assortment, in line with competitors	1
Debtor's dependence on one customer or group of customers	Absent	No dependence on buyers	1
Pricing strategy	Prices correspond to the average market	Prices must correspond to the average market level	1
Total	-	-	6

Significance coefficients, in agreement with the employees of the financial and economic department of research's companies, are set at the following level:

40% - financial risk;

30% - legal risk;

30% - business risk.

The level of credit risk in relation to the considered debtor of the airline will be:

50 * 0.3 + 55 * 0.4 + 75 * 0.3 = 59.5%

The credit policy in relation to debtors with an appropriate level of credit risk is presented in Table 4.

Table 4 – Credit policy based on the results of the assessment of the credit risk of the debtor

Risk level	Credit risk	Installment payment
90-100%	Minimum	Yes
70-90%	Short	Yes
40-70%	Average	Limit
20-40%	High	In minimal volumes
Less than 20%	Maximum	No

The use of this table makes it possible to classify the respective debtor as a credit risk group and to determine the main parameters of commercial lending for this debtor.

So, in relation to the debtor analyzed in this research, a restrained credit policy should be pursued. Payment by installments in relation to this debtor is permissible, but the volume of commercial loans must be limited, requiring the debtor to provide additional guarantees of payment.

Currently, the number of the airline's customers is over a thousand. The results of applying the methodology to existing debtors showed that approximately 21% of debtors have a high level of credit risk. Currently, work is underway with these debtors in order to change the payment system, limit the use of commercial loans.

Commercial lending is unacceptable for debtors with high and maximum levels of credit risk.

Thus, taking into account the introduction of the new credit policy, it is expected that the number of delinquencies will sharply decrease, and it is proposed to use factoring for the current accounts receivable at the end of 2020.

3.3.3 Optimization plan II

One of the important tasks of optimizing the working capital of the airlines under study is to optimize cash flows and restructure accounts payable.

The first step in this direction is the introduction of a procedure for daily reconciliation of cash balances and drawing up a payment schedule. The composition of the payment schedule may differ depending on the specifics of the company.

The value of the payment calendar as a tool for managing creditworthiness lies in establishing a link between cash flows, specific time or periods of time, and the purpose or origin of the amounts of money.

By introducing a payment schedule into the working capital optimization system of the airlines under study:

- prevents cash shortages and non-fulfillment of the company's obligations to counterparties;
- controls the spending of funds in excess of the approved amount;
- liquidity management of the enterprise is more efficient;
- the order of payment of the payment is being followed.

In practice, situations often arise when the receipt plan is not fulfilled, but the expenditure and expenditure plan is fulfilled in full, then the total amount of the payment request exceeds the actual receipt of funds. To avoid a cash gap, it is recommended to rank all payments by priority or importance. Under additional conditions, payment for the item with the highest priority is mandatory and has a lower priority. For example, when filing an application for payment of a debt to large suppliers, taxes are initially paid, and the costs of modernization of production are financed when sales plans are fulfilled by at least 90%.

The payment calendar also reflects the current state of the company, in particular, its current solvency. Therefore, if there are any prerequisites for liquidity problems, they will be noticed in a timely manner.

Thus, when using a payment calendar, you can achieve a minimum gap between payments and cash receipts.

To optimize the structure of working capital, we offer measures aimed at reducing accounts receivable through the use of factoring.

The meaning of factoring is the provision of funds by the factoring company to the company to cover accounts receivable. In this case, the factoring company assumes the risks of returning receivables for a certain fee (percentage of the amount of receivables).

Let us emphasize that factoring is turning into an actively developing method of refinancing a buyer's liabilities.

Also, in a factoring transaction, there may be a fourth intermediary participant, which, for example, can provide an electronic platform, a platform for the transaction.

Lending to suppliers is carried out by buying out short-term receivables by a factoring company or a bank. At the same time, the factor enters into an agreement with the creditor, which stipulates that as soon as claims for payment for the supply of products arise, the supplier of products is obliged to provide payment documents to the factor. In turn, a factoring company or a bank discounted payment documents by paying the creditor from 75 to 90% of the value of claims. After the debtor settles with the product supplier, the factor pays the remaining amount to the supplier, but at the same time deducts from him the interest for the loan provided and commission payments for the services rendered.

Particular attention should be paid to such newer types of factoring as invoice discounting and EDI factoring (electronic factoring).

Invoice discounting is similar to regressive hidden factoring. The difference is that funding is not paid for each delivery separately, but for the current outstanding amount of all deliveries. In fact, a discounting invoice is a loan secured by pending payments. In this case, the risk of non-payment for the delivered deliveries remains with the seller: if the buyer does not pay on the debt obligations, the funds will be debited from the supplier. This type of factoring is aimed at large, reliable clients with good financial performance.

The innovative system of EDI factoring allows to automatically carry out transactions for confirmation and assignment of claims based on packages of electronic documents for deliveries, and the EDI format allows you to quickly connect and integrate with all parties participating in transactions.

So, thanks to the factoring agreement, the supplier can immediately receive payment from the factor for the shipped goods, which allows him not to wait for payment from the buyer and plan his financial flows. Thus, factoring provides the company with real cash, accelerates capital turnover, increases the share of productive capital and increases profitability. In addition to financing current assets during factoring, the bank covers a significant part of the supplier's risks: currency, interest, credit and liquidity risks.

In recent years, the factoring market has been developing, expanding, increasing the volume of financing, many companies refuse from bank lending services and actively use factoring services.

3.4 Comparation of the Optimization plans

So, based on the above financial research and analysis in terms of cash flow, financial leverage and profitability and the study of management decision making of the two airlines, the following conclusions can be drawn.

The surveyed airlines are sensitive to their financial circumstances and have the ability to make appropriate and effective management decisions in a timely manner to alleviate and resolve a variety of problems. Both airlines under study are inclined to strengthen and renew their core businesses for sustainable development.

The following methods are proposed to improve the efficiency of the management of current assets of the studied airlines:

– reduction of overdue receivables using the factoring mechanism;

– improving credit policy by introducing a methodology for assessing the credit risk of potential debtors.

One of the reasons for the decrease in the efficiency of using the company's assets is the presence of significant delays on the part of debtors, therefore, it is important to work with overdue receivables. Untimely receipt of funds to accounts from debtors leads to a shortage of cash, impedes timely settlements with creditors.

The airlines under study are currently actively working to collect overdue receivables. In 2017-2020 companies managed to recover significant amounts of overdue receivables, mainly the receipt of overdue debts comes from a number of debtors, the right to collect which was obtained in court. However, the time and financial costs of such cases are also significant. Therefore, it is proposed to use such a mechanism as factoring.

At the same time, the company needs to actively work to prevent the formation of overdue accounts receivable. To do this, it is advisable to use an advance payment form for new customers. Also, great attention should be paid to assessing the potential solvency of clients at the stage of concluding agreements with them. In particular, in order to prevent the formation of overdue accounts receivable, it is proposed to introduce a rating methodology

for assessing the credit risk of debtors at the company, based on the calculation of the following types of risk:

– legal risk of the debtor - is assessed based on the period of operation of the company and determines the overall probability of termination of its existence;

– financial risk of a debtor - the risk of deterioration of its financial condition and occurrence of insolvency;

– business risk of the debtor - the risk of insolvency on the part of the debtor due to external factors.

Thus, the implementation of the above recommendations will enable the company to receive cash by reducing accounts receivable and the cost of maintaining inventories. The effect of these measures will lead to an increase in turnover, will have a positive effect on liquidity and profitability indicators, and will reduce the duration of production and financial cycle.

Next, we will calculate the costs of the proposed activities and assess their impact on the airline's performance and the efficiency of working capital management.

Let's calculate the income and expenses from the application of the factoring mechanism. The amount of overdue debt is 117263 USD million.

The factoring commission percentage is 3%, i.e. the amount of the debt received will be:

FC = 117263 * 0.97 = 113,745 USD million.

Factoring costs = 117263 - 113745 = 3518 USD million.

It is recommended to use the received debt to pay off accounts payable, as a result of which you can get more favorable conditions from suppliers.

Forecasted accounts payable will be:

FAP = FAP0 – PAP,

where FAP – forecasted accounts payable;

FAP0 – accounts payable in the reporting period;

PAP – paid off accounts payable.

FAP = 251796 - 113745 = 138,051 USD million.

So, based on the results of the calculations, it can be concluded that the efficiency of using assets is improving, since all turnover indicators are increasing. Consequently, the proposed measures are effective and can be implemented in the investigated enterprise.

Results and Discussion

4. Evaluation of the Company and Optimization of the working capital

Today's financial management and control of working capital need huge attention and it is a difficult task due to the existence of a high portion of working capital in a business. The management of current assets which has an accounting year to convert into cash and current liabilities which is payable within a year and the relationship among the two may be considered as working capital management.

As it is known, both the current assets and current liabilities are presented in a given business. I would like to mention that, in my opinion, working capital management is at the top of the hierarchy among the key financial practices, it should be continuously monitored, analyzed and improved.

The level of current assets and current liabilities may have a different impact on the performance or the profitability of a given firm. High level of current assets may harm the performance of the firm; however, a lower level of current assets may forward to a decreased level of liquidity and stock-outs which poses challenges in maintaining optimal working capital. Traditionally, the concept of working capital is the offset balance of assets and current liabilities. As a result, working capital management is an effort to administrate, control, and manage the current assets and the current liabilities in a given business firm to maximize profitability or performance and to maintain a proper level of liquidity.

The proper implementation of financial management specifically working capital management is vital for the success of firms. Inefficiency in the financial management of a given firm may harm its performance. When the financial management of a business firm is efficient, it will create a shareholder's value and it is a fundamental element in the overall strategy of the firm. Besides, the performance and liquidity of a firm are affected by the level of working capital management and it is crucial for the firm.

Appropriate management of working capital is an essential portion of the whole corporate strategy to add shareholders worth. Besides, well-organized working capital management helps to advance the operating performance of the firm motives and it helps to attain short-range liquidity. Hence, firms make an effort to preserve an optimum level of working capital that maximizes their worth. Besides, proper working capital management is very vital for firms since it has a significant impact on the performance and liquidity of firms.

The key aim of working capital management is to attain the optimal balance between its components.

For instance, one of the components of working capital is inventory; huge inventory and liberal trade credit policy may result from huge sales and huge inventory may also diminish the risk of a stock-out. Trade credit may motivate sales since it permits a business firm to get product quality before disbursing. The other component of working capital is accounts payable; deferring disbursement of accounts payable to vendors lets firms get the quality of procuring products and can be cheap and dynamic means of financing. Instead, differing of such payables can be costly if a firm is provided a discount for prompt payment. Another component of working capital management is accounts receivable; uncollected accounts receivables can result in cash inflow difficulties for the firm.

Also, the other major component of working capital is cash; the well-known measure of working capital management is the cash conversion cycle, that is, the period between the disbursement for the procurements of raw materials and the collection of sales of finished products. The prolonged the time spans, the greater the investment in working capital, and also a prolonged cash conversion cycle may escalate profitability since it leads to huge sales.

Nevertheless, corporate profitability may diminish with the cash conversion cycle if the expenses of huge investment in working capital grow quicker than the benefits of holding additional inventory stocks or yielding more trade credit to customers. Besides, the major source of the failure of a business enterprise has been the shortage of working capital, their improper holding, mismanagement of working capital, and underemployment of capacity. Overall, not only working capital management helping the performance of firms in the current cash-strapped and uncertain economy, but it is the query of attaining the firm's day-to-day operation. Consequently, it is vital to identify and recognize the issue of working capital management and its impact on firms' performance.

Certain investigations have been made in identifying the impact of working capital management on the performance of some firms (manufacturers, airline companies etc.); however, there was no empirical study done on the impact of working capital management on the performance of firms. Thus, the absence of investigations made on the impact of working capital management on the firms' performance leads this work to be undertaken. As a result, the ultimate purpose of the study was to examine and investigate the impact of working capital management on the performance of firms operating. To reach this objective, the following hypothesizes was developed and tested: account receivables period, cash

conversion cycle, inventory conversion period, and accounts payable period have a significant and positive impact on firms' performance. The account receivables period measured the receivables management of the firm, the cash conversion cycle measured the cash management of the firm, the inventory conversion period measured the inventory management of the firm, and the accounts payable period measured the payables management of the firm.

Various research results on the appropriate level of working capital are like a double-edged sword. Some scholars believe that a high positive net working capital weakens the corporate financial liquidity as there are additional financial costs that increase firms' bankruptcy probability (Lind et al. 2012; Kieschnick et al. 2013).

However, some researchers argue that companies with a high level of working capital are likely to have better financial safety (Deloof 2003; Madhou et al. 2015; Dalci and Ozyapici 2018).

The crucial point is that during a crisis the liquidity management policies of all companies will be affected (Campello et al. 2010), but companies with weaker financial capacity are likely to suffer more because banks and financial institutions rarely lend to them (Ivashina and Scharfstein 2010).

Banks remarkably reduce offering loans during the financial crisis; thus, market liquidity and economic activities might go down (Ivashina and Scharfstein 2010; Baker et al. 2016). In this regard, Handley and Limao (2015) argue that ambiguous atmosphere and uncertainty are barriers to investment and entry into new markets (Handley and Limao 2015).

However, investment during periods of financial uncertainty can be more profitable because it provides more investment opportunities rather than a more considerable risk. In fact, enterprises can increase profitability by expanding their share of the market. It seems that a significant decrease in investment during the financial crisis is not the result of a lack of innovation and creativity in the market, but rather the lack of credit allocation of financial institutions to companies.

An increase in the cost of capital reduces the net present value of budgeted projects and makes it difficult to forecast the future cash flows of plans and innovations (Tandoh 2020). Working capital management not only important for firms with fewer financial resources but also they are effective when firms are expanding their investments during economic retrieval periods (Le 2019).

Thus, to get rid of financial problems in times of crisis, managers should use appropriate working capital policies. In general, the WCM approach consists of three main groups including aggressive, conservative, and moderate strategy (Tandoh 2020; Zimon and Dankiewicz 2020; Weinraub and Visscher 1998).

The aggressive strategy is expected to have a higher risk and higher returns, while the conservative approach is linked to lower risk and lower returns (Weinraub and Visscher 1998). In short, a high level of receivables and liabilities, as well as a low level of stocks, inventories, and short-term investments, are characteristics of the aggressive strategy (Zimon and Dankiewicz 2020; Zimon 2020a).

On the other hand, the purpose of the conservative approach is to remove entirely the client insolvency risk (Zimon and Dankiewicz 2020). Reducing receivables from customers, maintaining high stocks, and timely settlement of liabilities are features of the conservative strategy (Zimon 2020b). Lastly, the moderate strategy aims to minimize the disadvantages of conservative and aggressive strategies and to maximize their advantages. The moderate strategies are divided into two strategies: a moderate-aggressive strategy and a moderate-conservative one.

The moderate-conservative strategy is based on the principles of the conservative strategy, and the moderate-aggressive strategy is designed according to the aggressive strategy (Zimon 2020b). Knowledge on an approach a company chooses seems to depend more on liquidity status since maintaining adequate liquidity can be the key to a company's long-term financial success. This means that the WCM plan a firm design has an important influence on the minimum liquidity requirement. Today's business world sometimes faces unexpected challenges such as financial crises. Therefore, due to the ambiguity in the business environment, companies should maintain a minimum liquidity requirement to be able to be flexible in times of crisis so that they can overcome their problems (Chang et al. 2019; Schilling 1996).

Working capital optimization is usually a choice between high liquidity or high profitability. The impact of working capital management on the company's performance, profitability and liquidity has been confirmed in several studies conducted around the world (Ding et al. 2020; Enqvist et al. 2014; Zimon and Zimon 2020; Vahid et al. 2012) in various industrial sectors, e.g., the restaurant and automotive industries (Vahid et al. 2012; Bei and Wijewardana 2012; Mun and Jang 2015; Garaa-Teruel and Martinez-Solano 2007).

The relationship between profitability and working capital management arouses great interest among scientists, and this relationship has also been confirmed on the example of studies conducted by American, Belgian, Greek, and Spanish small and medium-sized enterprises (Kieschnick et al. 2013; Bei and Wijewardana 2012; Mun and Jang 2015; Garaa-Teruel and Martinez-Solano 2007).

In the literature, there are studies in which the role of trade credits is presented as the key to the safety of enterprises during the crisis (Lu et al. 2021; Talwar et al. 2021; Wojcik-Jurkiewicz et al. 2021). This carried out some signals that during the pandemic, companies tried to apply a moderately conservative working capital management strategy. High financial liquidity ratios, CCC and lower results of the receivables turnover in days in relation to the liabilities turnover ratios in days indicate the use of a safe strategy built on conservative principles.

The research shows that the best results in terms of liquidity and profitability are achieved by the largest enterprises operating in large cities. Previous studies on the management of working capital, liquidity and profitability showed that when the level of working capital increased, financial liquidity decreased profitability.

Conclusion

The efficiency of the functioning of any company is impossible without the rational investment of working capital and the availability of its own circulating assets, as well as without its effective placement in individual elements of circulating assets the structure of which significantly affects the financial condition of the company and the solvency and liquidity of its assets.

The current state of industrial companies is characterized by an unstable financial situation and inconsistency of balance sheet liquidity indicators with standard values as well as an illiquid balance sheet and problems with the possibility of urgent repayment of the most urgent obligations.

Another problem of the modern functioning of the companies is the absence or a small amount of its own working capital invested in current assets. It does not allow the normal financing and requires the search for additional sources of financing.

Therefore, the mechanism of effective management of current assets of the company is impossible without a preliminary and detailed analysis of the state, dynamics, structure, efficiency of use of both individual elements of circulating assets, and their overall, as well as an assessment of the impact of their turnover on the liquidity of current assets confirming the relevance of this study, its main directions and meaning.

It was determined in this work that the working capital is the connecting link in the economic activity of almost any company. The optimization of the working capital management system has a positive effect on the financial performance of the company.

Working capital is the financial resources that are fully expendable and renewable with a certain cyclicality to ensure the operating activities of the company. Working capital is formed from inventories and raw materials, work in progress, low-value and wearing out materials, finished goods and receivables.

Various sources of information are used to analyze the efficiency of using the working capital of the company. The key role in the analysis is played by accounting data, public financial reports of the companies, and operational accounting data.

Management of current assets includes areas for the management of their individual types. These directions can be used to improve the activities of specific organizations. An

analysis of the use of current assets allows us to identify the main shortcomings and problems of such management on the basis of which the ways of their solution can be identified.

Current asset management plays a key role in the activities of the company, due to which the organization receives sufficient resources to carry out its activities. Therefore, it is very important to pay attention to such characteristics as the efficiency of the use of working capital, as well as the search for optimal sources of its financing.

Working capital should not be more than it is required for the company, otherwise, it will accumulate an excess of resources that will not be able to generate income for the company. Insufficient working capital means that the firm will not be able to meet short-term obligations. Thus, it is very important for companies to have sufficient working capital to achieve their goal of maximizing shareholder wealth.

Companies manage working capital to maximize profits but maintaining the company's liquidity is also an important goal in a business performance management system. The dilemma is that increasing profits from liquidity can lead to serious financial problems for the firm. Thus, the firm's strategy must maintain a balance between these two goals (profitability and liquidity) of the company.

Empirical evidence has shown that working capital management can have a signifi-can`t impact on firms' performance in times of financial crisis (Akgun and Karata§ 2020; Baveld 2012) because it affects current assets, short-term liabilities, revenues, and costs of operations (Zimon and Dankiewicz 2020).

During the Coronavirus economic crisis, managers should be sensitive to a sufficient level of working capital for their firms to stay still resilient and competitive. To achieve sustainable development, companies must always use the right working capital strategies because setting a good level of net-working capital causes the optimization of the costs of managing it and maintaining financial liquidity (Zimon and Dankiewicz 2020). Research on this area is still scarce, particularly in providing empirical evidence on the firms' policy changes in working capital management during the COVID-19 crisis. Thus, this study is going to determine what kind of insight the firms with the largest share in the total economic value added of a country have towards their working capital policies during the economic crisis.

The ultimate objective of this empirical study was to examine the impact of working capital management on the performance of firms.

A big problem with the research into the COVID-19 pandemic is that during pandemic times the structure of most of the companies was changed, as well as their financial statement looks unusual compare to pre-covid times. However, this paper attempts to assess changes in the policy of managing working capital in firms that took place in the first months of the pandemic.

In conclusion, the following recommendations are posted given the results of the study.

1) As the working capital management which was measured by the account receivables period, cash conversion cycle, and accounts payable period have a statistically significant and positive correlation with the performance of firms which was measured by return on asset and return on investment, firms may need to extend credit terms for their customers, may prolong their cash conversion cycle, and may need an extended payment period to the extent of the number of their debts. However, all the extended periods and cycles have to be made up to the optimum level of working capital management. Also, the inventory conversion period has a statistically significant and positive correlation with the performance of firms, which was measured by return on investment, but it has an insignificant correlation with return on asset. As a result, firms may or may not hold a high volume of inventory. Thus, it is advisable to consider the result of this study while making decisions regarding their working capital management to support their performance; specifically, they have to maintain an optimal level of working capital in their operations. For instance, to attain a high volume of sales, they may need to provide extended credit terms for their customers to use their debit fiancé optimally and to secure their payment potential they may need to extend their payment periods by dealing with their creditors. Indeed, according to this study result, firms are better to implement a conservative policy of working capital management.

2) The outcome of this investigation is almost contradicted with the investigations which were made by other researchers related to the study area. Thus, it is better to make further investigations by future researchers in this regard. Also, future researchers are recommended to give attention to the statistically insignificant variable in this study.

3) Besides, it is better to make further studies on the factors which are contributed to the high performance of firms since there are diversities in the method, subject area, and understandability of works of literature from country to country.

The work proposed directions for improving enterprise asset management:

1) reduction of overdue receivables using the factoring mechanism;

2) improving credit policy by introducing a methodology for assessing the credit risk of potential debtors.

The funds received as a result of the return of accounts receivable are proposed to be used to pay off accounts payable. The positive aspects in the analysis process include the presence of significant own working capital which makes it possible to exclude the company's dependence on external sources of financing.

An important area of optimizing working capital is working with overdue receivables. To prevent the formation of overdue accounts receivable the work suggests to implement a rating methodology for assessing the credit risk of debtors of the company, which involves the calculation of the following components: legal risk, financial risk, business risk.

Based on the results of the calculations, it can be concluded that the efficiency of asset use is improving, since all turnover indicators increase. Consequently, the proposed measures are effective and can be implemented in the investigated companies.

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