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ASSESSING ECONOMIC SITUATION OF A COMPANY AND PROPOSALS FOR ITS IMPROVEMENT

POSOUZENÍ STÁVAJÍCÍ EKONOMICKÉ SITUACE SPOLEČNOSTI A NÁVRHY NA JEJÍ ZLEPŠENÍ

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HINDLS, R. a kol. Statistika pro ekonomy. 8. vyd. Praha: Professional Publishing, 2007. 418 s. ISBN 978-80-86946-43-6.

KROPÁČ, J. Statistika B. 3. vyd. Brno: Akademické nakladatelství CERM, 2012. ISBN 978-80-7204-822-9.

REŽŇÁKOVÁ, M. et al. Řízení platební schopnosti podniku. 1. vyd. Praha: Grada Publishing, 2010. 192 s. ISBN 978-80-247-3441-5.

RŮČKOVÁ, P. Finanční analýza: metody, ukazatele, využití v praxi. 6., aktualiz. vyd. Praha: Grada Publishing, 2019. 152 s. ISBN 978-80-271-2028-4.

SEDLÁČEK, J. Finanční analýza podniku. 2., aktualiz. vyd. Brno: Computer Press, 2011. 152 s.
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ABSTRACT

The diploma thesis evaluates the economic situation of the selected company in between years 2014 to 2022. The theoretical part describes financial ratios. some of which are selected for statistical analysis, analysis indicators, time series, regression. In the practical part a financial and statistical analysis, which determine the current situation and expected progression of indicators in the following years. In the last section, based on the identified problematical areas. possible suggestions for improving the current situation are describes in the recommendation part.

ABSTRAKT

Diplomová práce se zabývá hodnocením ekonomické situaci vybrané společnosti v letech 2014 až 2022. Teoretická část se věnuje finančním ukazatelům. z nichž některé jsou vybrány pro statistickou analýzu, ukazatelů analýzy, časovým řadám, regresní a korelační analýze. V analytické části je provedena finanční a statistická analýza, která určuje současnou situaci a očekávaný vývoj ukazatelů v následujících letech. Poslední část zahrnuje návrhy na zlepšení současné situace na základě zjištěných problematických oblastí.

KEYWORDS

Financial ratios, time series, regression analysis, forecasting, statistical methods

KLÍČOVÁ SLOVA

Finanční ukazatele, časové řady, statistické metody, regresní analýza, prognóza, statistické metody

ROZŠÍŘENÝ ABSTRAKT

Finanční analýza je nepostradatelným nástrojem pro zjištění finančního zdraví společnosti a měla by ji provádět každá společnost. Výsledky analýzy odhalí, kde má společnost silné a slabé stránky, na které se musí zaměřit a pokusit se je v budoucnu zlepšit. Provádění průběžné finanční analýzy poskytne nejen přehled o minulé situaci společnosti, ale také možnost nastínit trend, který lze očekávat v budoucnosti.

Cílem diplomové práce je komplexní zhodnocení ekonomické situace společnosti Europasta SE, včetně přehledu jejího vývoje v letech 2014 až 2022, s využitím finančních ukazatelů a statistických metod (provedení regresní analýzy a vyrovnání časových řad), jejich zhodnocení a navržení možných opatření vedoucích ke zlepšení její současné situace. Práce je rozdělena do 3 částí.

První část tvoří teoretická východiska práce, která jsou rozdělena na finanční teorii a statistickou teorii. Finanční teorie vysvětluje finanční analýzu, zdroje dat, které jsou potřebné k sestavení finanční analýzy. Dále jsou uvedeny její vybrané ukazatele ze skupiny rozdílových, poměrových a systémových ukazatelů včetně vzorců potřebných k výpočtu. Statistická teorie se zaměřila na analýzu časových řad, regresní analýzu, predikci. Informace byly čerpány z literatury zaměřené na tuto problematiku.

Praktická část promítne teorii do reality. Pro tyto výpočty byly použity údaje z účetních výkazů společnosti v časovém horizontu devíti let. Pro statistické výpočty byly použity programy RGui a MS Excel. Jednotlivé ukazatele budou vypočteny. Dále bude provedena prognóza na následující 2 roky (2023 a 2024). Pro praktický výpočet použiji účetní výkazy za roky 2014 až 2022 obsažené ve výročních zprávách. Jako poslední část této práce jsou uvedeny aktuální návrhy, které povedou ke zlepšení ekonomické situace společnosti:

1) připravenost na neočekávané situace (2020 : pandemická krize; 2021 : Covid –19, narušené dodavatelské řetězce a nastupující inflační prostředí v ekonomice, nárůst cen tvrdé pšenice; 2022: konflikt na Ukrajině výrazně ovlivnil zejména odvětví obilovin, které je pro společnost klíčové. Ruská invaze byla těsně následována prudkým nárůstem cen obilovin, zejména pšenice obecné),

2) suroviny: zásadním problémem se stal růst cen tvrdé pšenice, který byl ovlivněn především neúrodou v klíčové pěstitelské zemi - Kanadě. Poměrně rychlý byl v posledním čtvrtletí roku i vývoj cen druhé klíčové komodity, pšenice potravinářské. Vývoj nákladů se následně stal zásadním pro další obchodní kroky společnosti na trhu, spojené s růstem cen výrobků.

3) spotřeba energie : závod má mnoho strojů (linka Pavan L4, Bühler L1, linka Pavan L3) na výrobu, balení výrobků a každý stroj potřebuje hodně energie. Spotřeba energie tvoří 85 % (2017) až 90 % (2022) všech nákladů.

V závěrečné části práce se zaměřím na budoucí stav společnosti a navrhu realizovatelná doporučení, která by mohla vést ke zlepšení finančního zdraví. Navrhovaná opatření a doporučení možná opatření vedoucí ke zlepšení její současné situace. V poslední část této práce jsou uvedeny aktuální návrhy, které povedou ke zlepšení ekonomické situace společnosti:

1) vyhledání nových dodavatelů: mým návrhem bylo, aby vedoucí společnosti přehodnotili seznam dodavatelů a pokusili se spolupracovat se dvěma novými dodavateli (nejen s kanadským). Lídrem v produkci pšenice je Čína. Čína nakupuje více australské pšenice než kdykoli předtím, a to i poté, co se diplomatické vztahy mezi oběma zeměmi v posledních letech nabouraly. V prvních deseti měsících letošního roku se australské dodávky podílely na čínském dovozu pšenice 63 %, zatímco za celý rok 2021 to bylo 28 % a o rok dříve jen 15 %.

Za dalšího velkého prodejce lze považovat Indii. Indie je druhým největším producentem pšenice na světě, ale na celosvětovém obchodu s pšenicí se podílí méně než 1 %. Velkou část z ní si ponechává, aby poskytla dotované potraviny pro chudé. Indie chtěla v letošním roce zvýšit vývoz a vyexportovat rekordních 10 milionů tun pšenice — oproti pouhým dvěma milionům v loňském roce.

2) příprava na neočekávané situace, doporučila jsem 7 kroků, které by bylo možné zavést pro zvládnutí případné neočekávané krizové situace a úspěšný rozvoj v budoucnu:

- vypracovat důkladný plán kontinuity podnikání (BCP), který stanoví postupy a protokoly, jež je třeba dodržovat v případě narušení nebo krize,
- pravidelně přezkoumávejte a aktualizujte svá opatření pro zajištění připravenosti tak, aby odrážela měnící se rizika a okolnosti,
- vypracování komunikačního plánu pro efektivní komunikaci se zaměstnanci, zákazníky, dodavateli a dalšími zainteresovanými stranami,
- udržovat zdravou finanční pozici tím, že budete mít dostatečné rezervy a peněžní toky, abyste odolali neočekávaným poruchám,
- zavedení důkladných opatření pro zálohování dat a kybernetickou bezpečnost, abyste ochránili své podnikání před narušením dat, kybernetickými útoky a technologickými poruchami,

- zkontrolujte své pojistné krytí, abyste se ujistili, že dostatečně chrání vaši firmu před potenciálními riziky a závazky,
- analýza a příprava možné budoucí strategie.

3) ušetření nákladů na elektřinu: koupit solární panele. Elektrárna by se skládala ze 71 sad solárních panelů o potenciálním výkonu 450 Wp umístěných na střeše pivovaru s hliníkovou konstrukcí zatíženou betonovými taškami. Dále roční náklady na údržbu ve výši 2,8 milionu Kč a nutnou výměnu rozvaděče po 10 letech v ceně 200 000 Kč pro obě elektrárny. Předpokládaná životnost solárních solárních panelů je garantována na 30 let. Potenciální výkon takto vybudovaného fotovoltaického systému fotovoltaické elektrárny je 90 kWp. návratnost investice na začátku 14 roku v roce 2035 se společností investice do fotovoltaické elektrárny vyplátí.

BIBLIOGRAFICKÁ CITACE

KRASNOVA. Ekaterina. Posouzení stávající ekonomické situace společnosti a návrhy na její zlepšení [online]. Brno. 2023 [cit. 2023-05-15]. Dostupné z: <https://www.vutbr.cz/studenti/zav-prace/detail/151392>. Diplomová práce. Vysoké učení technické v Brně. Fakulta podnikatelská. Ústav ekonomiky. Vedoucí práce Karel Doubravský.

DECLARATION OF AUTHENTICITY

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Brno, 15 May 2023

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INTRODUCTION

Financial analysis is an indispensable tool for determining the financial health of a company and should be performed by every company. The results of the analysis will reveal where the company has strengths and weaknesses that it needs to focus on and try to improve in the future. Conducting an ongoing financial analysis will not only provide an overview of the company's past situation, but also the ability to outline the trend that can be expected in the future.

The aim of the Thesis is a comprehensive assessment of the economic situation of the company Europasta SE, including the review of its development from 2014 to 2022, using financial indicators and statistical methods, to assess them and to propose possible measures leading to the improvement of its current situation. The thesis is divided into 3 parts.

The first part consists of the theoretical background of the thesis, which is divided into financial theory and statistical theory. The financial theory explains the financial analysis, the sources of data that are needed to compile the financial analysis. Furthermore, its selected indicators from the group of difference, ratio and system indicators are presented, including the formulas needed for calculation. Statistical theory is focused on time series analysis, regression, including formulas.

The practical part will reflect the theory into reality. Individual indicators will be calculated in the time horizon of nine years. Afterwards, a comparison and interpretation over time will be conducted. Next, the forecast will be made for the next 2 years (2023 and 2024). For practical calculation, I will use financial statements for the years 2014 – 2022 contained in the annual reports.

In the final part of Thesis, I will focus on the future condition of the company and propose viable recommendations, which could lead in an improved financial health. Proposed measures and recommendations possible measures leading to the improvement of its current situation.

AIMS OF THE WORK, METHODS AND PROCEDURES OF PROCESSING

An important part of the thesis is the determination of the objectives, methods and procedures needed for its processing.

The main objective of the thesis is to analyze and evaluate the economic situation of Europasta SE on the basis of selected indicators of financial analysis, time series analysis, regression analysis and in order to create predictions and proposals that will serve as a means to improve its economic situation.

To achieve the main objective, the following sub – objectives have been set :

- definition of theoretical concepts and background, description of the analysed company,
- analysis of selected financial ratios. analysis using selected statistical methods,
- assessing the financial situation by analysing and identifying problems,
- suggestions for improving the current situation.

The first part of the thesis is theoretical and defines the basic concepts for understanding the whole issue, financial analysis indicators and methods of statistical analysis are described, which are then used in the practical part of the thesis to calculate the specific data of the company. It is a description of financial and statistical analysis according to the professional literature.

The practical part of the thesis is mainly based on the company's financial statements (annual reports, balance sheet, profit and loss statement) for the period 2014 to 2022 are used for the partial financial analysis.

All calculations were performed using Microsoft Office Excel and program R.

1 THEORETICAL BACKGROUND

The following chapter is divided into two parts – financial theory and statistical theory. Each part explains the theoretical background necessary for the practical part of the thesis.

This part of the thesis is focused on the definition of theoretical concepts related to the issue based on the literature. The chapter is divided into several parts. First, the meaning of financial analysis, its users and the sources of data used for its elaboration are explained. Then the different types of financial analysis indicators are described, followed by statistical analysis. The formulas and procedures that are further applied in the practical part of the thesis are included.

1.1 Financial Theory

Financial analysis can be defined as a company's rating system by using selected indicators. Financial analysis is closely linked with financial accounting and financial management. For a higher predicative ability of financial data, financial analysis is used. It is defined as a formalized method, which measures the acquired data with each other, thus expanding their explicitness to reach certain conclusions on the overall performance and the financial situation of the company, thanks to which it would be possible to adopt suitable solutions (Grünwald & Holečková, 2007).

Financial analysis is the analysis of company data, primarily from financial statements, and is used to evaluate past and present developments and to forecast future financial conditions. Financial analysis is an important element of corporate management and has become a means of assessing the economic situation (Knápková, 2017).

The meaning and the purpose of the financial analysis is to carry out a diagnosis of financial management of a company, using special methods, in order to capture all of the necessary components of detailed analysis and evaluate its financial position (Valach, 2003).

The primary objective of financial management is financial stability. which can be assessed according to the following basic criteria:

- the ability to make a profit. to secure an increase in assets and to value the capital invested – the essence of business,
- the solvency of the company (Knápková, 2017).

Solvency expresses the long – term ability of a firm to pay all its due obligations in the required form and at the required place. If a company is able to pay for its obligations on time, it creates the conditions for the preservation, continued existence and increase of its market value. Conversely, a long – term inability to pay maturing debts may eventually lead to insolvency (Režňáková, 2010).

As mentioned, throughout the financial analysis, very valuable information for subsequent financial planning can be obtained. However, every company carrying out an analysis needs to reach highly relevant results and following conditions need to be taken into account:

- applicability: methods are adequate to the conditions and resources of the company,
- efficiency: expected revenue resulting from the findings significantly exceed the costs incurred in the processing,
- suitability: financial analysis is made in connection to the pre–defined objectives (Sedláček, 2011).

1.1.1 Methods of financial analysis

The methods of financial analysis are structured in terms of many perspectives. Elementary technical analysis focuses on the analysis of development, structure and trends and serves as a means for standard financial analysis of a company. Higher financial analysis methods are based on more complex mathematical procedures (Sedláček, 2011).

Methods of elementary technical analysis include:

- Analysis of absolute indicators, analysis of difference indicators,
- Analysis of ratio indicators,
- Analysis of indicator systems.

The advantages of these methods are the simplicity and straight – forwardness of the calculations and their subsequent processing (Sedláček, 2011).

The different methods of elementary technical analysis are explained below. The higher methods of financial analysis include:

Mathematical – statistical methods:

- correlation coefficients, which are used to assess the interdependence of the analyzed indicators,
- point estimates, which help us to estimate approximate normal and standard values of the indicators for a group of companies,
- factor analysis, used to simplify the dependence of a structure of indicators,
- analysis of variance, which allows us to select indicators that have a decisive impact on the desired results,
- regression analysis, used to characterize mutual connection between two or more indicators.

Non – statistical methods (Sedláček, 2011).

More difficult methods of the financial analysis use complex mathematical procedures. They try to capture the linkages between not only different indicators, but also links between individual enterprises (Sedláček, 2011).

1.1.2 Data sources for financial analysis

When preparing a financial analysis, it is first necessary to find out information about the company, the business, the size of the company and information about the industry. An important source is the annual report or other freely available information. Other information can be obtained from auditors' reports, company statistics and other internal sources (Knápková, 2017, p. 66).

Financial accounting statements are an important source of data for financial analysis:

- Balance Sheet,
- Profit and loss account,
- Statement of changes in equity,
- Annex to the financial statements (Růčková. 2019).

Balance Sheet

The balance sheet is a fundamental financial statement in accounting that provides a snapshot of a company's financial position at a specific point in time. It is also known as the statement of financial position (Martinovičová, 2014).

The structure of assets can depend on many factors. The main factor is the technical intensity of production, which affects the share of tangible fixed assets in total assets. Other factors include the specific economic situation of the company, its economic policy, as well as the depreciation policy of the company. The classification of assets is important for analyzing a company's financial health, liquidity, and overall value. (Martinovičová, 2014).

The amount of liabilities on a balance sheet is not directly determined by the asset structure of a business. Liabilities represent the company's obligations or debts to external parties, and they can arise from various sources regardless of the asset structure. While the asset structure can influence the overall financial position and risk profile of a company, liabilities are independent of the specific assets held by the business. The “golden balance rule in accounting” states that investment assets should be covered by the company's equity (Knápková, 2017, p. 69).

The problematic factors in the balance sheet analysis is primarily:

- timing and accruals: the balance sheet represents a snapshot of the financial position at a specific point in time. It may not reflect the recognition of certain revenues or expenses based on accrual accounting principles,
- the balance sheet also does not contain information on the dynamics of the company, as it describes the state of the assets at one given point in time,
- hidden and overstated liabilities: certain liabilities may not be readily apparent on the balance sheet. This could include contingent liabilities, off – balance – sheet obligations, or undisclosed liabilities that can have a significant impact on the company's financial health and do not show their realistic value, given their creditworthiness (Růčková, 2019, p. 80).

Profit and loss account

The profit and loss account is an accounting statement showing an overview of income, expenses and profit or loss for an accounting period. Income shows the amounts of money received during the accounting period, regardless of when they are paid. Costs, on the other hand, show the amounts of money spent to earn revenue during the accounting period, irrespective of when they are paid. The profit before tax is generally the difference between total income and total expenses. This difference may result in a profit or loss (Knápková, 2017, p. 43).

The information from the profit and loss account is particularly relevant for assessing the profitability of the enterprise. Unlike the balance sheet, the profit and loss account shows flow variables, which means that the status of individual variables is shown over a certain time interval and changes over time may not be uniform. Costs and revenues are not a reflection of actual cash flows (income and expenditure), so the resulting profit may not represent the actual value achieved (Růčková, 2019, p. 65).

1.1.3 Ratio analysis

The most widely used, popular method of financial analysis is ratio analysis, which provides an overview of the basic financial characteristics of a company. Ratio analysis provides meaningful insights into the financial health and performance of a company by comparing different financial figures and relationships. It helps in identifying trends, strengths, weaknesses, and potential areas of improvement (Sedlacek, 2011, p. 55).

Financial ratios can be categorized into several key areas:

1. Liquidity ratios,
2. Profitability ratios,
3. Solvency ratios,
4. Efficiency ratios (Máče, 2005).

1.1.3.1 Liquidity ratios

Liquidity ratios generally measure a company's ability to meet its short-term obligations with its readily available resources. These ratios assess the company's ability to pay its current liabilities as they come due. In other words, liquidity ratios indicate the

company's ability to convert its current assets into cash to cover its current liabilities. (Růčková, 2019, p. 83).

Current Ratio

Current ratio is the simplest measure of liquidity (Tier 3 liquidity), which indicates how many times the current assets cover the current liabilities of the enterprise. It tells us if a company turned all of its current assets into cash at a given time, how it would be able to satisfy its creditors. (Růčková, 2019).

A ratio greater than 1 suggests that the company has more current assets than current liabilities, indicating a potentially healthier liquidity position. The recommended value is between 1.5 and 2.5, with an exception in the industrial companies (2 to 2.5). A current ratio below 1 may indicate a liquidity concern, as the company may struggle to meet its short-term obligations. (Cisco, 2003).

The formula for the calculation is as follows (Cisco, 2003, p. 121):

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}. \quad (1.1)$$

Quick asset ratio (Acid-Test Ratio)

Quick liquidity (Tier 2 liquidity) removes inventories, which are the least liquid component of current assets (Režňáková, 2010). The Quick Ratio, along with other liquidity ratios, helps assess a company's short-term financial health and its ability to handle unexpected financial obligations. It represents the most problematic part of the current assets, as they can be unsellable or their conversion may be associated with significant losses (Sedláček, 2011). According to the literature, the value of the indicator should take values in the range 1–1.5. A Quick Ratio value greater than 1 indicates that the company has sufficient liquid assets to cover its current liabilities. (Režňáková, 2010).

The formula for the calculation is as follows (Cisco, 2003):

$$\text{Quick asset ratio} = \frac{\text{current assets} - \text{inventory}}{\text{current liabilities}}. \quad (1.2)$$

Immediate liquidity (Cash – position ratio)

Immediate liquidity (Tier 1 liquidity) measures a company's ability to pay its payable liabilities immediately or in the very near future. The calculation uses the most liquid items (the amount of money in current accounts, other accounts or cash on hand, freely tradable securities and cheques). Current debts may also include current bank loans and short-term financial assistance, they are separated from current liabilities in the balance sheet under bank loans and advances (Růčková, 2019).

According to the literature, the value of the indicator should take values in the range 0.2–0.5. Higher values indicate an inefficient use of funds, but in times of economic instability or recession, for example, it is advisable to have higher cash reserves to eliminate shortfalls in collections in case of customer insolvency (Režňáková, 2010).

The formula for the calculation is as follows (Cisco, 2003):

$$\text{Cash position ratio} = \frac{\text{cash}}{\text{current liabilities}} \quad (1.3)$$

1.1.3.2 Profitability ratios

Profitability ratios can be used to measure the earning capacity in business activities. These ratios help assess the company's ability to generate profits relative to its sales, assets, or equity. The key indicator is the excess of revenues over expenses. In the case of positive values, it is a profit and in the case of negative values we are in a loss.

Profitability ratios are primarily focused on measuring the rate of return or the earning capacity of the company. They indicate how well a company is utilizing its resources to generate profits and create value. (Mrkvička & Kolář, 2006).

Return on equity

Return on equity (ROE) expresses the rate of profitability on equity. It measures the profitability and efficiency of utilizing shareholders' funds in generating profits. This indicator reflects the return on capital that it has been invested in the company by the shareholders or owners of the company (Růčková, 2019). Owners (shareholders, stockholders and other investors) use this indicator to determine, whether their capital

provides sufficient yield, which corresponds to the risk of their investments (Sedláček, 2011).

The formula for the calculation is as follows (Cisco, 2003):

$$\text{ROE} = \frac{\text{EAT}}{\text{Equity}} \cdot 100 , \quad (1.4)$$

$$\text{Earnings After Taxes} = \text{Total Earnings} - \text{Taxes} . \quad (1.5)$$

Return on assets

Return on assets (ROA) determines the profitability of the total assets invested into business without regards to the sources of financing (equity, long/short – term liabilities). (Růčková, 2019). It is especially useful for a comparison with different tax conditions or different gearing ratios. The values are recommended to be higher than 12 % (Sedláček, 2011).

The formula for the calculation is as follows (Cisco, 2003):

$$\text{ROA} = \frac{\text{EBIT}}{\text{Assets}} \cdot 100 , \quad (1.6)$$

$$\text{EBIT} = \text{Profit after tax} + \text{Income tax (paid)} + \text{Interest expense} . \quad (1.7)$$

Return on sales

Return on sales (ROS) is another commonly used profitability indicator. it characterizes profit in relation to sales. ROS is commonly used to evaluate a company's financial performance over time and to compare its profitability with industry peers. It helps assess a company's operational efficiency, pricing strategies, cost management, and ability to generate profits from its revenue. (Růčková, 2019).

The formula for the calculation is as follows (Cisco, 2003):

$$\text{ROS} = \frac{\text{EBIT}}{\text{Sales}} . \quad (1.8)$$

Return on capital employed

Return on capital employed (ROCE) expresses the effect of long – term investments. It indicates the return generated by a company's total capital employed, which includes both equity and debt, in relation to its operating profit.

ROCE measures how effectively a company utilizes its total capital to generate operating profit. It indicates the efficiency with which a company's capital investments are generating returns. A higher ROCE indicates that a company is generating more operating profit per unit of capital employed, reflecting greater efficiency and profitability (Dluhošová, 2008).

The formula for the calculation is as follows (Cisco, 2003):

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital Employed}}, \quad (1.9)$$

$$\text{Capital Employed} = \text{Total Assets} - \text{Current Liabilities}. \quad (1.10)$$

1.1.3.3 Solvency ratios

These indicators describe the relationship between own sources (equity) and external sources (liabilities) of corporate financing. They measure the scale in which the company uses the debt to finance its activities (Knápková & Pavelková & Šteker, 2013).

Total indebtedness (Debt – to – Assets Ratio)

The ratio of total indebtedness shows us the percentage of funds invested in the company by creditors (lenders) (Blaha & Jindřichovská, 2006). Indebtedness has an impact on the company's profitability and the risk of creditors, which is higher the higher the value of this indicator. A lower ratio indicates lower dependence on debt financing and higher solvency (Dluhošová. 2008). The recommended value of the total indebtedness ratio is given in the range of 30 to 60 % (Knápková & Pavelková & Šteker, 2017).

The formula for the calculation is as follows (Cisco, 2003):

$$\text{Total indebtedness} = \frac{\text{Liabilities}}{\text{Total assets}}. \quad (1.11)$$

The financial leverage ratio

The financial leverage ratio (the debt ratio or equity multiplier) measures the proportion of a company's total assets that are financed by debt. It indicates the extent to which a company relies on borrowed funds to finance its operations and investments. The higher the financial leverage ratio, the greater the company's reliance on debt financing.

The formula for the calculation is as follows (Mrkvička & Kolář, 2006):

$$\text{Financial leverage ratio} = \frac{\text{Short-term} + \text{long-term liabilities}}{\text{Assets}} \quad (1.12)$$

1.1.3.4 Efficiency ratios

Efficiency ratios examine how efficiently a company manages its assets. One result is that it has more assets than ideal, incurring unnecessary costs and lower profits. They are used to determine whether the company is using the invested resources efficiently. (Sedlacek, 2011).

Expression is possible in two forms:

- Turnover indicator – the number of turnovers of the company's assets for a given time interval is given.
- Turnaround time indicator – tracks the length of time that capital has been tied up as assets. In economic calculations, a year most often represents 360 days and this fact is also used in calculations of turnaround times (Kislingerová & Hnilica, 2008, p. 87).

Total asset turnover

The asset turnover ratio tells you how many times the assets turn over in one year. At the same time, it measures the overall utilisation of these assets (Vochozka, 2021). The recommended minimum value is 1, however it is influenced by the type of industry that the company belongs to. Turnover of total assets is represented by following formula (Knápková & Pavelková & Šteker, 2013):

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}} \quad (1.13)$$

Receivables turnover

This indicator expresses the ratio between sales and receivables. It indicates the number of times, on average (the receivables days), that a company collects its accounts receivable during a specific period. The receivables turnover ratio helps assess the effectiveness of a company's credit and collection policies and provides insights into its liquidity and cash flow (Růčková, 2011). This indicator shows the amount of time from the time of sale on trade credit that a company waits before receiving agreed payments from its customers. If the turnover period of receivables is longer than the maturity period, it has to consider credit.

The formula for the calculation is as follows (Knápková. 2013):

$$\text{Receivables turnover} = \frac{\text{Sales}}{\text{Receivables}}, \quad (1.14)$$

$$\text{Receivables days} = \frac{360 \text{ days}}{\text{Receivables turnover}}. \quad (1.15)$$

1.1.4 Systems of selected indicators

The sets of selected indicators can be divided into two subgroups:

- bankruptcy (bankruptcy indicators. which are primarily of interest to creditors, as they are interested in the company's ability to repay its obligation).
- creditworthiness models (creditworthiness indicators. which assess the quality of a company based on its performance. which are the focus of investors and company owners) (Scholleová, 2017).

They belong to the methodological tools of financial analysis and are usually based on multiple factors and interdependencies between indicators. They are early warning. identification of symptoms of future insolvency and predictive models (Kalouda, 2016).

1.1.4.1 Bankruptcy models

Bankruptcy models, also known as bankruptcy prediction models, are statistical models that aim to assess the financial health and potential bankruptcy risk of a company. These models use various financial ratios, accounting data, and other relevant variables to predict the likelihood of a company going bankrupt within a certain time frame.

Bankruptcy models include:

- Altman index of financial health (Z – score),
- IN indices (Růčková,2019).

Altman index of financial health (Z – score)

The Altman model is one of the aggregate indices included in the bankruptcy models. It is used to distinguish between firms that fall between those that are at risk of bankruptcy and those that are probabilistically far from bankruptcy (Růčková,2019).

Altman model of financial health is the best known so-called multivariate model, which is a model based on several selected ratios that are assigned certain weights. The amount of which is then used to estimate the future financial position of the company. The main advantage of the model is that it predicts quite reliably about 2 years ahead of the actual bankruptcy. However, it works with less reliability into the more distant future (Scholleová, 2017).

The formula for the calculation is as follows (Růčková, 2019):

$$Z = 0.717 X_1 + 0.847 X_2 + 3.107 X_3 + 0.420 X_4 + 0.998 X_5. \quad (1.16)$$

where:

X_1 – net working capital / assets	(liquidity indicator)
X_2 – retained earnings / assets	(long – term profitability indicator)
X_3 – EBIT / assets	(profitability indicator)
X_4 – equity / liabilities	(debt indicator)
X_5 – sales / assets	(activity indicator)

Boundaries for the predictions of the financial situation of the company are presented in the table below:

Table 1: The boundaries for predictions
(Source: Own elaboration according to Sedláček, 2011)

$Z > 2.9$	"Safe" zone	It is a financially strong company
$1.23 < Z < 2.9$	"Grey" zone	It is a company with an undefined financial and economic situation

$Z < 1.23$	"Distress" zone	The company is not financially healthy and is at risk of bankruptcy
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The safe zone boundary predicts that the company is not threatened by an immediate chance of bankruptcy, thus assigning it a label "financially healthy". The grey zone represents an intermediary result, when it is not certain whether the company is about to thrive or suffer. However, the companies that appear in the distress zone, are in a precarious position.

Index IN05

The IN group of indices was developed for the Czech economic environment. The IN models are expressed by an equation containing ratio indicators, which are assigned coefficients based on data from the analysis of Czech enterprises. The IN index was compiled in four variants – IN01, IN05, IN95 and IN99. In addition to predicting bankruptcy, it focuses on whether the enterprise creates value for owners (Kubičková, 2015).

The index is calculated according to the equation (Růčková, 2019) :

$$IN05 = 0.13 \cdot A + 0.04 \cdot B + 3.97 \cdot C + 0.21 \cdot D + 0.09 \cdot E. \quad (1.17)$$

where:

A = total assets/foreign equity, D = total revenue/total assets,
 B = EBIT/interest expense, E = current assets/current liabilities and loans.
 C = EBIT/total assets,

The classification of the enterprise is evaluated on the basis of the resulting index values:

Table 2: Resulting index values

(Source: Own elaboration according to Růčková, 2019)

$IN > 1.6$	A satisfactory financial situation
$0.9 < IN \leq 1.6$	"Grey zone" of undefined results
$IN \leq 0.9$	The firm is at risk of serious financial problems

1.1.4.2 Creditworthiness model (Kralick's Quicktest)

It is used for a first assessment of the financial situation of the company. The main advantages are speed and availability of the necessary data. It consists of four ratios that have the same weight. The results of these indicators are compared to the rating scale and the arithmetic average of the obtained values represents the final result (Růčková, 2019).

The rating depends on the achieved values of the individual indicators in the table below and is the result of the formula:

$$\text{Rating of financial situation} = \frac{R1+R2+R3+R4}{4} . \quad (1.18)$$

where:

R1: Shareholder equity ratio = Equity / Total

R2: Debt repayment period from Cash flow = Total Liabilities / Operating CF

R3: Cash flow in % of sales = Operating CF / Sales

R4: Return on assets (ROA) = EBIT / Total Assets

<i>Indicators</i>	1 excellent	2 very well	3 well	4 poor	5 dangerous
R1 <i>Equity / Total Assets</i>	> 30%	> 20%	>10%	> 0%	Negative
R2 <i>Debt Settlement Period from Cash Flow</i>	< 3 years	< 5 years	< 12 years	< 30 years	> 30 years
<i>Financial Stability</i>	<i>Arithmetic mean of total assets and Debt Settlement Period from Cash Flow</i>				
R3 Operating Cash Flow / Sales	> 10 %	> 8 %	> 5 %	> 0 %	negative
R4 EBIT/ Total Assets	> 15 %	> 12 %	> 8 %	> 0 %	negative
<i>Profit Situation</i>	<i>Arithmetic mean of Operating Cash Flow and ROA</i>				
Total Grading	Arithmetic mean of all four indicators				

Picture 1: Kralicek Quick test

(Source: Grünwald & Holečková, 2007, str. 191)

A very good enterprise should receive an overall score of less than 3. A score above 3 indicates serious financial problems for the enterprise. Enterprises with an average score of around 3 are enterprises with an unsettled financial situation, for which the financial situation needs to be monitored on an ongoing basis.

Furthermore, the final grade is calculated as a simple arithmetic average of the marks obtained for the each indicator (Grünwald & Holečková, 2007, str. 191).

1.2 Statistical theory

The subchapter of statistical theory will explain time series, what graphs are used to represent time series, characteristics of time series and time series decomposition. Regression analysis, choice of regression function, regression line, what are other types of regression functions and non—linear regression models will also be explained.

1.2.1 Time series

Time series are spatially and substantively comparable values of observations of a certain indicator arranged in increasing time (from past to present). The analysis can give an idea of the nature of the process that the time series represents. Methods are used to analyse and forecast time series to describe them and predict future behavior (Budíková, 2010).

The values of the time series can be expressed as the sum of the partial components:

$$y_i = T_i + C_i + S_i + e_i , \tag{1.19}$$
$$y_i = T_i \cdot C_i \cdot S_i \cdot e_i \text{ (multiple decomposition).}$$

where: $t = 1, 2, \dots, n$

T_i — value of the trend component (means the tendency of long—term development of the indicator values over time). Trends can be increasing, decreasing or constant. The values of an indicator of a given time series fluctuate around a certain, generally unchanging level.

C_i — value of the seasonal component (the seasonal component is a periodic recurring deviation from the trend component).

S_i — value of the cyclical component (represents fluctuations around the trend due to long—term cyclical developments with unknown and unstable periodicity). It is statistically a cycle of long—term fluctuations with an unknown period caused by causes other than the classical business cycle.

e_i — value of the random component (the random component cannot be described by any function of time. it remains after the trend, seasonal and cyclical components are removed). This component also covers measurement errors in time series data and other errors that arise during processing (Kropáč, 2012).

Graphical representation of time series

The interval time series can be represented graphically using three options:

- Bar Graph — consists of rectangles whose bases are equal to the lengths of the intervals and whose heights are equal to the values of the time series of the interval,
- Wand graph — individual values are recorded as lines in the centres of given intervals,
- Line graph — individual values of the time series are expressed as points in the centres of the intervals. they are further connected by lines (Kropáč, 2012).

Characteristics of time series

When analysing a time series, it is first necessary to focus on quickly getting an indicative idea of the nature of the process that will be represented by this series. A useful method is a visual analysis of the behaviour of the indicator that uses graphs along with the determination of elementary statistical characteristics (Hindls, 2007).

- Time series averages

The average of the interval series \bar{y} is found by the arithmetic average of the time series values in each interval, the formula is as follows (Kropáč, 2012) :

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i, \quad (1.20)$$

$$\bar{y} = \frac{1}{n-1} \left[\frac{y_1}{2} + \sum_{i=2}^{n-1} y_i + \frac{y_n}{2} \right]. \quad (1.21)$$

- First Difference

Absolute increments are the simplest characteristic that describes the evolution of a time series, which express how much its value has changed at a particular point in time compared to the immediately preceding time. If the values around the constant fluctuate, the time series can be said to have a linear trend (it can be described by a straight line) (Kropáč, 2012).

$$1d_i (y) = y_i - y_{i-1}. \quad (1.22)$$

- Average of first differences

The calculation below can be used to determine the average of the first differences, describing how much the value has changed on average within a unit time interval (Kropáč, 2012).

$$\overline{1^d(y)} = \frac{1}{n-1} \sum_{i=2}^n 1d_i(y) = \frac{y_n - y_1}{n-1}. \quad (1.23)$$

- Growth coefficient

The growth factor characterizes how many times the value of the time series has increased at a certain moment compared to the immediately following moment. If the coefficient values fluctuate around a constant the trend is exponential (Kropáč, 2012).

$$k_i(y) = \frac{y_i}{y_{i-1}}. \quad (1.24)$$

- Average growth coefficient

Another calculation is the average growth coefficient, which describes the average change in growth coefficients per unit time interval. According to the calculation, which is carried out by means of the geometric mean, it is necessary to take into account that only the first and last value of the time series indicator enters here. It makes sense to perform this calculation only if the time series has a so – called monotonic development (Kropáč, 2012).

$$\overline{k(y)} = \sqrt[n-1]{\prod_{i=2}^n k_i(y)} = \sqrt[n-1]{\frac{y_n}{y_1}}. \quad (1.25)$$

1.2.2 Regression analysis

In economic practice, a frequently asked question is whether one or more predictors influence the behaviour of the variable we are looking at, and we are also interested in the strength of these factors and their predictions. Using regression analysis as an answer, a dependency model in the form of an equation can be found (Budíková, 2010).

The principle of regression analysis is mainly to observe different variables Y (dependent variable or explanatory variable) and one or more other variables X₁, X₂, ..., X_n, which are independent variables or explanatory variables. As far as the explained variable is concerned, we do not know and cannot influence its values, unlike the values of the explanatory variables, which are fully under our control, they are also justified and

preset, or they are obtained as the results of random observation at the same time as the measured values of the explained variables.

The dependence between variables is affected by the so — called noise (e), which as a random variable expresses the influence of random and unconsidered factors. The mean value of this random variable e is equal to zero, that is, $E(e) = 0$ (Kropáč, 2012).

Choice of regression function

To decide on the most appropriate regression function. economic theory must be appropriately established to determine the independent variables suitable for dependent variable analysis. It will consistently assist in the selection of appropriate types of regression functions and the modelling of the dependencies in question.

The selection of the appropriate regression function is possible through two methods. The first method is the residual sum of squares, with the best—fitting functions leading to the smallest sum of squares. Due to the fact that this sum is not normalized, it is not possible to use this value to judge how well this chosen regression function expresses the relationship between the variables of interest. A more appropriate way to assess the fit of the regression function is the index of determination (I^2) described by the formula below (Kropáč, 2012):

$$I^2 = 1 - \frac{\sum_{i=1}^n (y_i - \widehat{\eta}_i)^2}{\sum_{i=1}^n (y_i - \bar{y})^2}. \quad (1.26)$$

The index of determination takes values from the interval $(0 ; 1)$, the closer the index is to 1, the better the regression function is chosen and the stronger the dependence (Kropáč, 2012).

1.2.2.1 Linear regression function

Linear regression

It represents the simplest type of regression function of the form:

$$E(Y|x) = \eta(x) = \beta_1 + \beta_2 \cdot x . \quad (1.27)$$

Firstly, the estimates of the coefficients β_1 and β_2 , also referred to as b_1 and b_1 must be determined:

$$S(b_1, b_2) = \sum_{i=1}^n (y_i - b_1 - b_2 \cdot x)^2 . \quad (1.28)$$

The estimates b_1 and b_2 of the coefficients β_1 and β_2 can be determined by the first partial derivative of the function $S(b_1, b_2)$. After adjustment of the inputs, the system of normal equations (Kropáč, 2012) is obtained:

$$n \cdot b_1 + \sum_{i=1}^n x_i \cdot b_2 = \sum_{i=1}^n y_i , \quad (1.29)$$

$$\sum_{i=1}^n x_i \cdot b_1 + \sum_{i=1}^n x_i^2 \cdot b_2 = \sum_{i=1}^n x_i \cdot y_i . \quad (1.30)$$

From the above system, the coefficients b_1 and b_2 can be found either by solving a system of two linear equations with two unknowns or by using the following formulae (Kropáč, 2012):

$$b_2 = \frac{\sum_{i=1}^n x_i \cdot y_i - n \cdot \bar{x} \cdot \bar{y}}{\sum_{i=1}^n x_i^2 - n \cdot \bar{x}^2} . \quad (1.31)$$

$$b_1 = \bar{y} - b_2 \cdot \bar{x} . \quad (1.32)$$

For the sample means \bar{x} and \bar{y} holds:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i . \quad (1.33)$$

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i . \quad (1.34)$$

The last step is to estimate the regression line of the form (Kropáč, 2012):

$$\hat{\eta}(x) = b_1 + b_2 \cdot x . \quad (1.35)$$

Parabolic regression

$$\eta = \beta_1 + \beta_2 x + \beta_3 \cdot x^2 . \quad (1.36)$$

Estimates of the coefficients β_1 , β_2 and β_3 can be obtained using the least squares method and then the resulting normal equations, as in the linear regression (Kropáč, 2012).

Polynomial regression

$$\eta = \beta_1 + \beta_2 \cdot x + \beta_3 \cdot x^2 + \dots + \beta_n \cdot x^n . \quad (1.37)$$

Logarithmic regression

$$\eta = \beta_1 + \beta_2 \cdot \log x . \quad (1.38)$$

The coefficient estimates can again be obtained by The Least Squares Method and by calculating the normal equations (Kropáč, 2012).

1.2.2.2 Non – linear regression models

Non – linear regression models are those regression models in which the regression function cannot be expressed by a linear combination of the regression coefficients and known functions independent of these coefficients. Non – linear regression models can be further distinguished into linearizable and non – linearizable regression functions (Kropáč, 2012).

Modified exponential trend

$$\eta = \beta_1 + \beta_2 \cdot \beta_3^x , \quad (1.39)$$

$$b_3 = \left[\frac{S_3 - S_2}{S_2 - S_1} \right]^{1/mh} + \beta_2 \cdot x + \beta_3 \cdot x^2 , \quad (1.40)$$

$$S_1 = \sum_{i=1}^m y_i , \quad (1.41)$$

$$b_2 = (S_2 - S_1) \frac{b_3^h - 1}{b_3^{x1} (b_3^{mh} - 1)^2} , \quad (1.42)$$

$$S_1 = \sum_{i=1}^m y_i , \quad (1.43)$$

$$b_1 = \frac{1}{m} \left[S_1 - b_2 \cdot b_3^{x1} \frac{1 - b_3^{mh}}{1 - b_3^h} \right] , \quad (1.44)$$

$$S_1 = \sum_{i=1}^m y_i , \quad (1.45)$$

$$S_1 = \sum_{i=1}^m y_i ; S_2 = \sum_{m+i}^{3m} y_i ; S_3 = \sum_{i=1}^{3m} y_i . \quad (1.46)$$

1.2.2.3 Prediction

It used for determine patterns in large sets of data and when there's a linear relationship between the inputs. This method works by figuring out a formula, which represents the relationship between all the inputs found in the dataset.

Usually companies are not interested in obtaining a deep understanding of the relationships between each individual predictor and the response, instead, the company simply wants to accurately predict the response using the predictors. (Hastie & Tibshirani & Friedman, 2017, p. 11)

Prediction intervals are always wider than confidence intervals, because they incorporate both the error in the estimate for $f(X)$ (the reducible error) and the uncertainty as to how much an individual point will differ from the population regression plane.

The predict function can be used to produce confidence intervals and predict prediction intervals for the prediction of A for a given value of B. (Hastie & Tibshirani & Friedman, 2017, p. 75)

2 ANALYSIS OF THE PROBLEM

This section of the thesis analyses the financial situation of the company and its environment. The period of the analysis is nine years, from 2014 to 2022. The data are taken from the company's website and the Justice.cz portal. This is followed by an analysis of the selected indicators. for which a statistical analysis is also performed and the values for the next two years (2023, 2024 year) are predicted using time series equalization.

2.1 Company introduction

Europasta SE is the largest branded pasta's producer with the key brands Adriana, Zátkovy vaječné testoviny, Rosické testoviny and Ideal.

Europasta SE is made up of two production divisions – in Litovel and in Boršov nad Vltavou. Production covers all segments of pasta – egg, egg – free, semolina, as well as whole – wheat, organic and two – minute varieties. In the milling segment, this is wheat flour and dehydrated semolina. They also supply bakery companies with rye flour (Website Europasta SE, 2023).

The European company Europasta SE changed its headquarters from the Kingdom of the Netherlands (Amsterdam) to the Czech Republic (Boršov nad Vltavou) on 19 November 2009.

Business name:	Europasta SE
Registered in:	U Sila 246. Poříčí. 373 82 Boršov nad Vltavou
Day incorporated:	21 of December 2009
Legal structure:	European company A European company. also a European joint–stock company (or Societas Europaea. abbreviated SE) is a joint–stock company established under European company law
Capital :	108 mln. CZK

Shareholders: Produtos alimentares Cerealis S.A. (Portugal)
PH Finance. s.r.o. (Czech republic)

Director: Bohumil Vráblík



Picture 2 : Logo of the company
(Source: website Europasta SE, 2023)

Product

Adriana's pasta is made in the highest possible quality from 100 % semolina flour, which is made from special durum wheat, which guarantees that the pasta does not overcook and does not stick together after cooling. Eggless pasta is currently produced in a new stylish package and in twenty — two shapes. The pasta product mix consists of four product lines, namely the Classica, Tricolore, 2 Minuti and ZOO series. The products of individual product lines are recorded in the following:

- Classica (500 g) : spaghetti, gobetti, linguine, fusilli, bows, rooster combs, large scallops, penne, spirals, wide noodles, small spindle, large spindle, stars, alphabet, wide noodles,
- Classica (600 g) : penne, collard greens, spaghetti,
- Semolina 100 % (500 g) : bucatini, cavatappi, cornetti rigati, creste di gallo, eliche, farfalle, filini, funghetto, gobetti rigati, penne, lasagne, spaghetti,
- Tricolore (500 g) : tricolor penne, torti (addition of spinach and tomatoes),
- 2 Minuts (500 g) : spaghetti, torti,
- ZOO (500 g) : mini bows, animals,
- Whole grain (500 g) : fusilli, spaghetti,
- BIO (500 g) : spaghetti. (website Europa SE, 2023)

Distribution

Adriana pasta is distributed to retail chains in the Czech Republic, namely Globus hypermarkets, Tesco supermarkets, hypermarkets and department stores, Interspar hypermarkets and supermarkets, Penny Market, Coop — coop terno, coop discount, Ahold — Albert hypermarkets and supermarkets, Billa supermarkets, Hruška supermarkets, Lidl supermarkets, Kaufland supermarkets.

Outside the Czech Republic, pasta is delivered to Polish retail chains, specifically to Tesco, to Russia (before 2022 year) and Slovakia. Apart from the consumer market, to which packages of 500 grams and in the Classica series are distributed in 500 grams, pasta is also packaged and sold in packages of 1 kg or 5 kg to the B2B market, which are sold in Makro's warehouse to catering entities. The company does not have its own brick — and — mortar store where pasta is sold. For employees, the sale takes place at a lower price in the canteen of the headquarters of the division only in a limited monthly quantity (Internal documents Europasta SE, 2021)

Promotion

To promote Adriana's products, radio communication on the Frequency 1 station, bigboards with the logo of the winners in all categories, professional and public journals such as Zboží a prodej, Gurmet, Metro are used. Advertising stickers on public transport in regional cities, including the capital city of Prague. Another means is direct support in hypermarkets in the form of leaflets, billboards, POS materials, in—store marketing and secondary placement of goods in the Tesco, Interspar, Albert, Penny Market and Terno (COOP) retail chains. They also use PR articles, TV advertising, internet campaigns, discounts, catalogs.

Furthermore, an online campaign is used for marketing communication through the Adriana and Europasta SE brand websites, Facebook pages and banners. Online Prima, Prima Fresh, Prima Style, Prima Zoom, Prima Love, Prima Cool and Prima Family are also involved in the communication tools, where articles about semolina pasta, how to cook pasta and how to choose the right shape were presented.

Adriana participated in the official exhibition organized by the Ministry of Agriculture of the Czech Republic, where catalogs, gifts, samples and banners were displayed.

Currently, there is an effort to increase the number of leaflets (e – leaflet in Kupi.cz), POS materials and secondary placement in the shopping chains COOP and Globus. The promotion is further carried out in the form of an online campaign on the website and Facebook, where visitors can participate in competitions for prizes in the form of a wellness weekend and maintain direct contact with the brand, and banners and PR articles about the quality of the pasta are, also placed on it (Internal documents Europasta SE, 2022).

Suppliers

Almost all suppliers (95 %) are located in the Czech Republic.

Table 3: Suppliers

(Source: Own elaboration according to internal documents Europasta SE: contracts, 2023)

Raw material (semolina flour)	Assmann from Austria (they have contract with Canadian producers)
Grain mill products	Mills Voženilek (Kojetín and Šternberk, Czech republic)
Eggs	Capex, Ltd. (Kosice, Slovak republic)
Water	Čerlinka Ltd. (Litovel, Czech republic)
Energy	E. ON and Pražská teplotárenská a.s. (Prague, Czech republic)
Foils for packaging material	Tapa Tabor (Tabor, Czech republic)
Packaging materials	OTK printing & packaging a.s. (Kolin, Czech republic)
Cartons and boxes	Model Obaly Inc. (Opava, Czech republic)
Pallets	PPD Ltd. (Ostrava, Czech Republic)

Laundry and delivery of employee clothing	Initial Ecotex, Ltd. (Kralupy nad Vltavou, Czech republic)
Telecommunications and internet	O2 (Czech republic)
Office (rent)	Law CZ Ltd. (Kroměříž, Czech republic)
Office supplies	Papera (Svitany, Czech republic)
Drugstore goods, disinfectants	PK Color (Litovel, Czech republic)

Competitors

Adriana's biggest competitors are the pasta brands Panzani, Pasta Zara and Barilla. Panzani pasta is considered to be the strongest competitor and the one with which the Adriana brand compares. Subsequently, the Panzani brand began to focus on products other than pasta and expanded its segment to include sauces. Panzani expanded its range to meet customer expectations. It combines tradition with modernity and is now spread all over the world. In many countries, these pastas are the leading brand in the market. It is currently sold in more than fifty countries worldwide. In the Czech Republic, Panzani CZ, s. r. o. has its headquarters in Prague.

The pasta is marked with the Pasta Zara label (in BILLA), offers consumers a very similar range of products as Adriana, namely classic pasta, soup pasta, tri – colour pasta, mini pasta, pasta express, pasta with 5 types of vegetables, etc. Based on the research Adriana commissioned, Panzani are still the leaders in the Czech market.

Barilla pasta is a high quality Italian pasta, made, like Adriana pasta, from high quality semolina flour, from durum wheat. (Internal documents Europasta SE, 2022)

2.1.1 History of the company

2.1.1.1 Branch in Boršov nad Vltavou

In 1884 the brothers Vlastimil and Dobroslav Zátkové opened the first mill in Austria – Hungary (in Boršov nad Vltavou). From 1929 to 1939, production was

expanded through new automatic machines. During the Second World War, the Germans confiscated all the property. Food production was suspended and replaced by military production. In 1948, it was nationalized and the company was incorporated into a state enterprise under the name "Mlýny a těstárny, s.p. Factory 2 Břeží" and became the center of the South Bohemian milling and pasta industry. Until 1989, despite the limited development of the technical base, the quality of production was maintained and continued to be among the best in the country. The factory (a former state-owned enterprise) returned to the Zátky family only in 1991 and that was under economic lease. In addition to industrial investments, the restoration of the traditional Zátkova pasta and Zátkova flour brands were also successful. In 2000 they sold their shares together with the management to a new shareholder Europasta B.V. (Website company ADRIANA, 2023)

2.1.1.2 Branch in Litovel – ADRIANA

After the Velvet Revolution, the Agricultural Cooperative's idea was to build new food production plants in the center of the fertile region, it was supposed to be a pasta, parmesan and ham (Italian prosciutto) factory. Since the time favored new projects, two of them were completed. The plant in Litovel was acquired by the Europasta company in 2003 as part of a solution to its financial problems arising mainly from the collapse of the Russian market in 1998. Given that it was the newest production plant in the Czech Republic, built on a green field, in an excellent location, it became with the basis for building the current largest production plant in Central Europe.

In 2008, another plant in Rosice was purchased from Tero Rosice, s.r.o. (Penam, a.s.). The transaction took place in exchange for the bakery assets of Europasta in České Budějovice.

In 2020 all companies of the group were merged into one company, the current company Europasta SE (Website company ADRIANA, 2023)

2.1.1.3 Foreign branch in Portugal – CerealisProductosAlimentares

Cerealis is a Portuguese company that is the market leader in pasta, cereal products, flour and chilled foods in Portugal. This company, like the Spanish Gallo, is a family business that was built with hard work, perseverance and clearly defined steps to achieve

goals. The company's values are innovation, quality and the desire to offer products that will perfectly satisfy the wishes of customers.

The company exports pasta to more than 40 countries on four continents. Success is built on strong company values, high product quality – pasta is made from the highest quality semolina flour, production technology, it bets on communication and advertising, because it believes in the effectiveness of brand building and trust in the brand. The last of the corporate values is focused on the people in the company, when they try to motivate and constantly educate their employees.

2.2 Industrial investments from 2019 to 2022

Year 2019

In 2019, investment actions were implemented in the total amount of CZK 27,520 thousand. There were investments to increase the capacity and operational reliability of the production line Pavan L4 (pre—dryer) and Bühler L1 (new Polymatic press) and the acquisition of a new cartoning machine Pavan L3 line. In the Boršov nad Vltavou division, investments in new screening machines and a sterilizer from the Bühler company (Annual report 2022 Europasta SE).

Year 2020

Investment actions were implemented in the total amount of CZK 20,372 thousand. Among the most significant investment actions of the year were investments in increasing the capacity and operational reliability of the production lines in Litovel, especially the Pavan L4 line. The plant in Boršov implemented a new automated sprinkler system at the wheat mill and investments in a grain cleaning plant. The digitization of the company is continuing, especially in the area Industry 4.0 and business intelligence (Annual report 2020 Europasta SE).

Year 2021

Investments in 2021 followed on from the previous year, when emphasis was once again placed on production investments in Litovel. In 2021, the total volume of investments reached the amount of CZK 31,228 thousand. CZK. After increasing the capacity of the Pavan L4 line for short pasta in 2020, the main investment of the year was

the investment in a new packaging section behind this line (packing machine, cartoning machine). With this investment, at the end of the year, we further increased the flexibility of the packaging section and significantly increased the capacity of brix (double — folded bottom) packaging. Other important investments were the reconstruction and increase of the capacity of the substation in Litovel (important for the future plant's development) and the addition of the freight fleet in Boršov nad Vltavou (Annual report 2021 Europasta SE).

Year 2022

The most significant part of the industrial investments (in Boršov nad Vltavou) would be invested in for the shipment of feed products (feed flour and bran) and the packaging room for flour's products. During the year, the project of a new software solution for production planning in Litovel should also be implemented. Both parts of the project were successfully completed (dispatch of feed products in May and flour packaging at the end of November).

After the completion of these investments, Company has one of the best flour packing plants in the Czech Republic, implemented in a new production hall, equipped with high—capacity packaging technology from the German company Fawema and supplemented with palletising from M.A.S. The total volume of investments implemented in Boršov after the deduction of subsidies reached CZK 44.993 million.

Investments in the Litovel plant represented a number of smaller investment projects with a total volume CZK 14.611 million (Annual report 2022 Europasta SE).

2.3 Unpredictable situations from 2019 to 2022

Year 2019

In 2019, there were several partial changes in the company's structure. The company continued to operate two production plants, namely in Litovel (pasta production plant) and in Boršov nad Vltavou (wheat mill, special production — semolina and rolled pasta). In Boršov nad Vltavou, the operation of the rye mill was terminated at the end of the year. The company headquarters is still located in Boršov nad Vltavou. The company has sufficient production capacity and modern technological equipment in all segments.

In the middle of 2019, the distribution of products to the independent Slovak market was changed. Europasta SE became a direct partner of Slovak customers and distribution through the subsidiary Ideal Slovakia, s.r.o. was terminated (Annual report 2019 Europasta SE).

Year 2020

Global events were unfortunately marked by the spread of a virus pandemic COVID – 19 and related restrictions of individual states that are trying to spread put the brakes on the pandemic in every possible way. As a result of this situation, they are currently closed all restaurants, people are forced to work from home in the vast majority of cases in the form of a home – office, so in most cases they cook themselves at home. It was a positive signal for all pasta producers who primarily supply their products to retail chains – in the case of Europasta SE, they are retail chains as the majority customer. Specifically Europasta SE's volumes increased in the initial months of the pandemic sales and thus total revenues.

The company, which owns the brand Zátkovy testoviny and Adriana, was also struggling with a fourteen – day quarantine (16 March 2020) in Litovel and around. At this critical time, the company was able to keep the key production plant in Litovel in operation under extensive restrictions, and on the contrary, ensure an increase in production to cover the market. Overcoming this critical moment was essential for achieving satisfactory results for the entire year 2020. In addition to the sales peak in March 2020, the company also recorded another significant increase in sales in October, during the second wave of the crisis. During this time the main plant in Litovel, which produces 80 % of the Czech republic's pasta, had problems to ensure the transport of raw materials and the necessary number of employees (Annual report 2020 Europasta SE).

Year 2021

The year was characterized by the aftermath of the first waves of Covid – 19, disrupted supply chains and the coming inflationary environment in the economy. In particular, this trend brought pressure on input prices to the company, basically in most key cost items. Of those, the rise in prices of durum wheat became a fundamental problem, mainly influenced by the crop failure in the key growing country – Canada. The price development of the second key commodity, food wheat, was also relatively rapid

in the last quarter of the year. The cost development subsequently became essential for the company's further business steps on the market, associated with the increase in the price of our products (Annual report 2021 Europasta SE).

Year 2022

The year 2022 was dramatically marked by the conflict in Ukraine, which began at the end of February. The conflict significantly affected, in particular, the cereals sector, which is crucial for company. The Russian invasion was closely followed by a sharp increase in cereal prices, particularly common wheat. Company showed considerable resilience at this point. Specifically, owning a grain silo with a capacity of 20,000 tonnes was an apparent strategic advantage. The strategy of covering purchasing positions for a longer period of time made it possible to slow down the rise in the wheat processing price and gave room for a gradual increase in the price of the Company's products, which took place almost continuously throughout the year.

The crisis in Ukraine, in addition to the rise in input prices (later in their full range), brought about a phenomenon that company often encounters in times of crises, namely a rapid increase in demand for our products. In March and April, in particular, demand was close to reaching our limits. The Company coped well with the rapid development throughout the year and achieved very good economic results (Annual report 2022 Europasta SE).

2.4 Vertical and horizontal analysis

In this part, there will be an analysis of status indicators, an analysis of selected balance sheet items monitored companies. Horizontal and vertical analysis will be used for their analysis, whereby we first analyze the assets and then the liabilities.

2.4.1 Vertical analysis

Using vertical analysis, we will look at the percentage representation of selected items balance sheets in the company's assets.

Table 4 : Vertical assets analysis 2014–2022

(Source: Own elaboration)

Years	Total assets	Fixed assets	Current assets	Inventories	Short—term receivables	Cash	Other assets
2014	100	54.85	37.78	14.98	20.81	1.98	0.64
2015	100	59.65	39.96	20.70	17.87	1.37	0.39
2016	100	58.82	40.68	21.62	17.90	1.16	0.50
2017	100	54.43	45.27	21.73	19.81	2.95	0.29
2018	100	51.06	48.67	22.62	25.97	1.66	0.27
2019	100	49.87	49.88	24.49	21.58	3.51	0.25
2020	100	49.95	49.77	19.98	22.13	7.61	0.28
2021	100	45.60	54.12	23.89	26.23	4.00	0.28
2022	100	38.81	61.10	24.40	35.89	0.80	0.09

Due to vertical assets analysis, we can observe that the company has the largest part of its assets in fixed assets, around 55 %, while last year it is 60 %. The company also has relatively large current assets part of its assets, around 38 %, while in the last observed year it is in circulation assets 40 % of the company's assets. These current assets are further distributed between inventories, short — term receivables and cash. Over the years, the size of this the representation changes, but on average the inventory is around 21.6 %, short — term receivables around 23.13 % and cash around 2.78 % of the company's assets. In 2022 inventories reach 24.4 %, short — term receivables 35.89 % and cash 0.8 %. It can be seen that the company keeps a large part of its assets in the form of cash resources.

Table 5 : Vertical liabilities analysis 2014–2022

(Source: Own elaboration)

Years	Total liabilities	Equity	Liabilities	Short—term payables	Other payables	Other liabilities
2014	100	11.19	82.07	33.87	2.78	0.02
2015	100	12.09	88.46	34.89	3.63	0.03
2016	100	15.11	84.86	60.07	7.03	0.03
2017	100	17.06	80.39	55.53	3.32	0.03
2018	100	17.95	82.01	59.45	2.89	0.04
2019	100	18.73	81.23	60.66	2.91	0.04
2020	100	21.58	78.38	60.65	3.62	0.04
2021	100	12.09	88.46	34.89	3.63	0.03
2022	100	30.23	69.39	66.56	5.34	0.37

In the vertical analysis of liabilities, we can observe that the vast majority of the company's capital is found in the form of equity, on average around 17.84 %. Liabilities is 74 % of the capital is in the form of external sources, since unlike the company's assets, accrual of liabilities is very close to zero. In the last year of the monitored period,

it is equity of the company almost 30 %. Furthermore, foreign sources this year it amounts to 69.4 %, of which roughly 66.56 % are the company's short – term liabilities.

2.4.2 Horizontal analysis

Using horizontal analysis, we will look at the development of selected individual items balance sheets over time, look at the percentage change of these items individually years.

Table 6 : Horizontal assets analysis 2014–2022

(Source: Own elaboration)

Years	Total assets	Fixed assets	Current assets	Inventories	Short–term receivables	Cash	Other assets
2015	–9.97	–8.67	–11.19	16.07	–27.87	–16.02	–48.97
2016	–7.86	–9.15	–6.18	–3.79	–7.72	–22.30	17.44
2017	5.24	–2.60	17.11	5.78	16.45	168.33	–38.02
2018	–1.92	–7.99	5.44	2.11	28.60	–44.69	–10.53
2019	–3.62	–5.86	–1.23	4.31	–19.92	103.55	–10.56
2020	–6.36	–6.21	–6.56	–23.61	–3.99	102.99	4.80
2021	7.26	–2.08	16.63	28.26	27.16	–43.65	5.97
2022	21.81	3.66	37.52	24.44	66.67	–75.52	–59.72

Due to horizontal assets analysis , observe mainly a decrease in most items balance sheets, which is caused by the reduction of the company's assets. Mainly reduction can be seen of the company's fixed assets, which is determined by the sale of the company's long–term assets in trying to increase profit or reduce losses. On the contrary, we can see large fluctuations in the circulating ones assets, which in some years amount to tens of percent. The highest fluctuations can be seen at Cash, which in 2017, for example, rose by 168.33 %.

Table 7 : Horizontal liabilities analysis 2014–2022

(Source: Own elaboration)

Years	Total liabilities	Equity	Liabilities	Short–term payables	Other payables
2015	–9,97	8,08	–9,47	–13,48	9,52
2016	–7,86	–3,31	–11,61	58,64	78,63
2017	5,24	18,81	2,82	–2,71	–50,24
2018	–1,92	3,16	–2,97	5,01	–14,67
2019	–3,62	0,58	–4,54	–1,66	–3,20
2020	–6,36	7,89	–9,65	–6,37	16,81
2021	7,26	12,30	5,66	12,20	31,54
2022	21,81	62,99	9,48	27,80	46,36

Similar to the horizontal analysis of assets, we can also do the horizontal liabilities analysis monitor the long – term decline in the company's capital. Percentage change in equity with the exception of 2016, when this decline was much more significant.

2.5 Results of ratio’s regression analysis

The following chapter deals with the results of selected financial analysis indicators and then statistical analysis is performed. The calculations were performed on the basis of the company's financial statements from 2014 to 2022 (Commercial Register) and the statistical analysis was performed using Excel and RGui.

2.5.1 Regression analysis of current liquidity

Liquidity ratios are monitored primarily for their ability to tell us about the company's ability to pay its liabilities. The table below shows the calculated liquidity ratios for the period under review. Formulas (1.1). (1.2) and (1.3) were used for the calculation.

Table 8 : Liquidity indicators 2014–2022

(Source: Own elaboration)

Indicator	2014	2015	2016	2017	2018	2019	2020	2021	2022
Current liquidity	1.11	1.14	0.66	0.81	0.82	0.82	0.82	0.85	0.91
Quick liquidity	0.67	0.55	0.31	0.42	0.44	0.42	0.49	0.48	0.55
Immediate liquidity	0.06	0.04	0.02	0.05	0.03	0.06	0.13	0.06	0.01

The literature gives recommended values for current liquidity in the range of 1.5 to 2.5. For quick, values of 1 – 1.5 are recommended and for immediate liquidity, values of 0.2 – 0.5 are recommended.

From Table 8, it can be seen that the company did not achieved these recommended values during the whole period, except for 2015, where both liquidity values were slightly below the recommended values. Current liquidity was selected for the following statistical analysis.

Time series characteristic

First difference and growth coefficient calculations were used to develop the time series. Data for the development of current liquidity are shown in Table 3. The average value of current liquidity was 0.88 in the monitored period, it is less than the recommended range, from 2016 the company uses current assets neffectively and keeps liquidity at a low level.

Table 9 : Development of current liquidity 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

Year (t)	x	Current liquidity	di (y)	ki(y)
2014	1	1.11	—	—
2015	2	1.14	0.030	1.03
2016	3	0.66	−0.48	0.58
2017	4	0.81	0.15	1.23
2018	5	0.82	0.003	1.00
2019	6	0.82	0.004	1.00
2020	7	0.82	−0.002	1.00
2021	8	0.85	0.03	1.04
2022	9	0.91	0.06	1.07
Average		0.88		

The development of the company's current liquidity in the monitored period period in 2014–2022. Except for the years 2014–2015, the value of this indicator exceeds higher than 1, and in recent years less than 1. At the first year in the monitored period in 2014, current liquidity reaches the value of 1.11, while in the last year of the monitored period in 2022, this value will decrease to 0.9.

The highest increase was in 2015, when the value of current liquidity increased by 0.03 and the highest decrease was in 2016, when it decreased by 0.48.

Coefficients

Table 10 : Coefficients of current liquidity 2014–2022

(Source: Own elaboration)

Coefficient	Standard error	t – value	p – value (F)	Determination coefficient
β_1	0.15	8.72	0.079	0.57
β_2	0.07	−2.66		
β_3	0.01	2.39		

Parabolic regression can be considered as a suitable model. The coefficient of determination was 0.57, it means that almost 57 % of the time series values can be

expressed by the chosen parabolic regression. The p – value for the coefficients is less than the significance level $\alpha = 0.05$, it means that statistically significant relationship between the independent and the dependent variables.

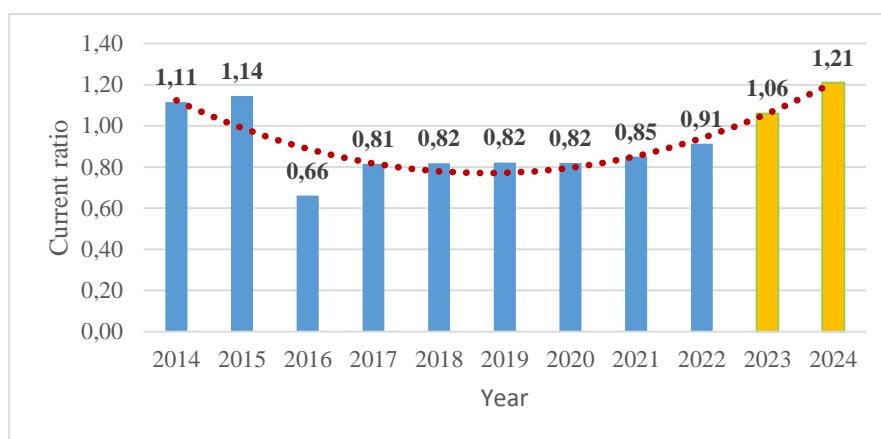
Trend description

A suitable function for indicators of current liquidity appears to be a second – degree polynomial regression line, which has the following equation:

$$\eta(x) = \beta_0 + \beta_1 \cdot x + \beta \cdot x^2$$

$$y = \eta(x) = 1.28 - 0.18 \cdot x + 1.28 \cdot x^2$$

Prediction for 2023 and 2024 year



Graph 1: Regression analysis and trend of current liquidity 2014–2024
(Source: Own elaboration)

Table 11 : Prediction of current liquidity for 2023 and 2024 year
(Source: Own elaboration)

Year	Forecast, %	Lower limits	Upper limits
2023	1.06	0.69	1.42
2024	1.21	0.68	1.74

The expected development of the value of current liquidity in the economic year 2023 is set at 1.06. The lower limit of the interval was determined to be 0.69 and the upper limit to 1.42. The economic year 2024 is expected to be 1.21 or should be in the interval $\langle 0.68; 1.74 \rangle$.

2.5.2 Regression analysis of ROS

ROS measures a company's profitability against its sales revenue. ROS expresses the ratio between a company's profit and sales. ROS is expressed as a percentage and indicates how much profit the company generates for every CZK of sales.

Table 12 : Development of ROS 2014–2022

(Source: Own elaboration)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
ROE, %	−8.92	−10.65	17.32	16.64	3.29	4.80	7.31	10.96	38.65
ROA, %	−1.07	−1.53	2.62	2.84	0.59	0.90	1.58	2.48	11.68
ROS, %	−0.75	−1.04	1.67	1.98	0.39	0.55	0.78	1.29	4.84
ROCE, %	−1.68	−2.36	6.81	6.39	1.46	2.29	4.01	6.81	35.33

The return on assets (ROA) can be used to assess how efficiently a company is using its assets. From the table 12, we can see positive values throughout the period under review, so the company was able to make a profit. The highest value was achieved in 2022, when CZK 0.11 profit per CZK 1 of total assets. On the other hand, the lowest value, when only CZK 0.05 profit per CZK of total assets was achieved in the first year under review. Compared to the sector, the company, except for 2016–2017 then from 2019, achieved higher values.

Return on Equity (ROE) is important to company owners as it reflects the rate of return on equity. Since the beginning of the period under review, the value of this indicator has been increasing until 2018, when the value started to decrease. The ratio was positive throughout the period under review and reached its highest value in 2022, when it was 0.38 CZK profit per 1 CZK of equity. Until 2015, the company had lower values than the industry, while in 2016 and 2017 the values were higher.

Return on sales (ROS) tells us how many CZK of profit per CZK of sales. Again, these were positive values throughout the period, with the lowest value being achieved in the first two year under review. The values have more or less increased since the beginning of the reporting period, with a decrease in 2018. The best year was 2022, where the profit per CZK of sales was CZK 0.05. In terms of comparison with the industry, the company showed lower values, except for 2018 and 2019.

Table 13 : Development of ROS 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

Year (t)	x	ROS, %	di (y)	ki(y)
2014	1	−0.75	—	—
2015	2	−1.0	−0.295	—
2016	3	1.67	2.714	—
2017	4	1.98	0.303	1.18
2018	5	0.39	−1.583	0.20
2019	6	0.55	0.157	1.40
2020	7	0.78	0.233	1.42
2021	8	1.29	0.504	1.64
2022	9	4.84	3.558	3.77
Average	1.64			

In Table 13 we can see that since 2014 the value of ROS has increased by 5.59 %. In 2022, the value reached 4.84. The average value of ROS is 1.64 %, which is very low. The time series of the ROS is best described by a second – degree polynomial regression line.

Coefficients

Table 14 : Prediction of ROS for 2023 and 2024 year

(Source: Own elaboration)

Coefficient	Standard error	t – value	p – value (F)	Determination coefficient
β_1	1.30	3.267	0.04	0.80
β_2	0.74	−3.013		
β_3	0.09	3.5		

A second – degree polynomial regression line was chosen correctly. The index of determination, for the given values, was set at 0.80, i.e. 80 %. The value of the index indicates a strong dependence on the choice of the regression function.

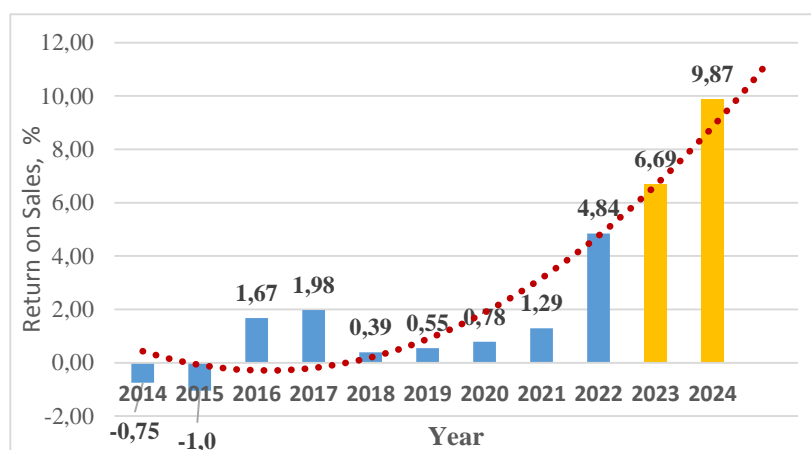
Trend description

A suitable function for indicators of ROS appears to be a second – degree polynomial regression line, which has the following equation:

$$\eta(x) = \beta_0 + \beta_1 \cdot x + \beta_2 \cdot x^2$$

$$y = \eta(x) = 4.26 - 2.25 \cdot x + 0.32 \cdot x^2$$

Prediction for 2023 and 2024 year



Graph 2: Regression analysis and trend of ROS 2014–2024
(Source: Own elaboration)

Table 15 : Prediction of ROS for 2023 and 2024 year
(Source: Own elaboration)

Year	Forecast, %	Lower limits	Upper limit
2023	6.69	3.07	10.31
2024	9.87	4.05	15.69

Table 15 shows the data for the following two economic years, where in 2023 the value was calculated at 6.69 %. The interval in which the values can vary this year is in the range (3.07; 10.31). For the economic year 2024, the predicted data are in the range (4.05; 15.69), while the preliminary value should be 9.87.

2.5.3 Regression analysis of total indebtedness

Indebtedness indicates the extent to which an entity relies on borrowed funds to finance its operations or investments. High levels of indebtedness may indicate increased financial risk and potential challenges in managing debt obligations. It can also impact a company's creditworthiness and ability to access additional financing.

Time series characteristic

Table 16 : Development of total indebtedness 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

Year (t)	x	Total indebtedness, %	di (y)	ki(y)
2014	1	87.98	—	—
2015	2	88.46	0.48	1.01
2016	3	84.86	−3.60	0.96
2017	4	82.91	−1.95	0.98
2018	5	82.01	−0.89	0.99
2019	6	81.23	−0.78	0.99
2020	7	78.38	−2.85	0.96
2021	8	77.21	−1.17	0.99
2022	9	69.39	−7.82	0.90
Average		81.38		

In the table of the development of the coefficient of total indebtedness in the monitored period in the years 2014–2022, we can observe that this coefficient decreased (shows a downward trend) at the end of the monitored period compared to the value from 2014 by 18.18 % percentage points, from 87.98 % to 69.39 %. The highest increase in the coefficient occurred in 2015, when its value changed by 0.48. On the contrary, the highest decrease of this coefficient occurred in 2022, when its value fell by 7.82.

The recommended value of the total indebtedness ratio is given in the range of 30 to 60 %. The average value of total indebtedness for the period under review was 81.38 % because of high liabilities. Table 13 show that total indebtedness has been declining since 2015 year under review until 2022, when it increased by 1 % compared from 2014 to 2015, the highest increase over the whole period under review. In 2015, it decreased again slightly. The largest decrease of 5 % occurred in 2015. The highest indebtedness was in 2015, with a value of 87.98 %. On the other hand, the lowest value of 69.39 % was achieved in 2022.

Will be used linear regression to predict further development.

Coefficients

Table 17 : Coefficients of total indebtedness 2014–2022

(Source: Own elaboration)

Coefficient	Standard error	t – value	p – value (F)	Determination coefficient
β_1	1.44	63.53	0.00009	0.90
β_2	0.25	–7.98		

The coefficient of determination in this case is 90 %. The p – values are also below the significance level of $\alpha = 0.05$, it means that there is sufficient evidence to reject the null hypothesis, which states that there is no relationship between the variables.

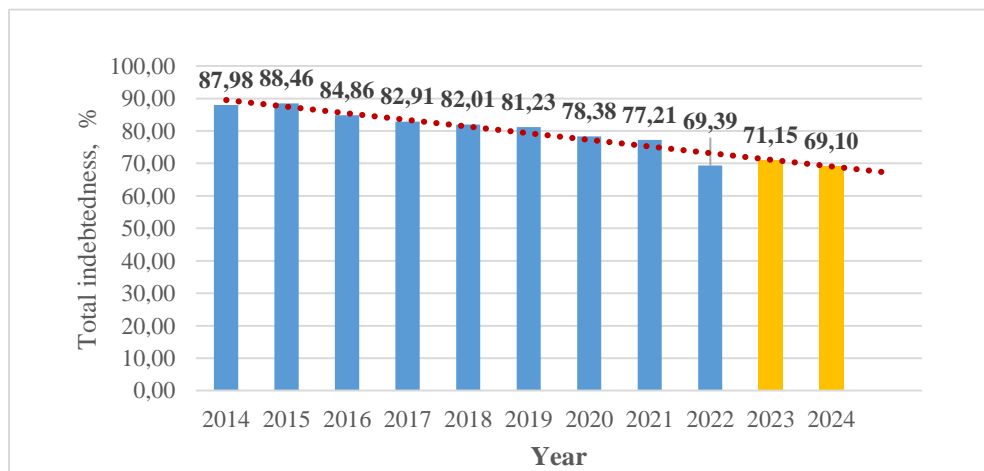
Trend description

A suitable function for total indebtedness is linear regression, which has the following equation:

$$\eta(x) = \beta_0 + \beta_1 \cdot x$$

$$y = \eta(x) = 91.61 - 2.046 \cdot x$$

Prediction for 2023 and 2024 year



Graph 3: Regression analysis and trend of total indebtedness 2014–2024

(Source: Own elaboration)

Table 18 : Prediction of total indebtedness for 2023 and 2024 year

(Source: Own elaboration)

Timeline	Forecast, %	Lower limits	Upper limits
2023	71.15	67.74	74.56
2024	69.10	65.14	73.06

Table 18 shows the data for the following two economic years, where in 2023 the value was calculated at 71.15 %. The interval in which the values can vary this year is in the range (67.74; 74.56). For the economic year 2024, the predicted data are in the range (65.14; 73.06), while the preliminary value should be 69.10.

2.5.4 Regression analysis of in – country sales

In – country sales are important to the overall economy of a country, as they contribute to domestic consumption, employment, and economic growth.

Table 19 : In – country sales 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

CZK thousand	2014	2015	2016	2017	2018	2019	2020	2021	2022
In country	653 331	683 859	666 839	649 472	631 861	681 006	714 854	726 897	1 106 849
Grain mill products	230 430	243 343	231 312	219 311	221 302	255 399	234 413	252 979	380 484
Pasta products	422 901	440 516	435 527	430 161	410 559	425 607	474 002	469 915	722 497
Other							6 439	4 003	3 868
Cross–border (export)	529 267	413 454	393 902	383 023	392 950	416 157	538 919	561 465	860 621
Total	1 182 598	1 097 313	1 060 741	1 032 495	1 024 811	1 097 163	1 253 773	1 288 362	1 967 470

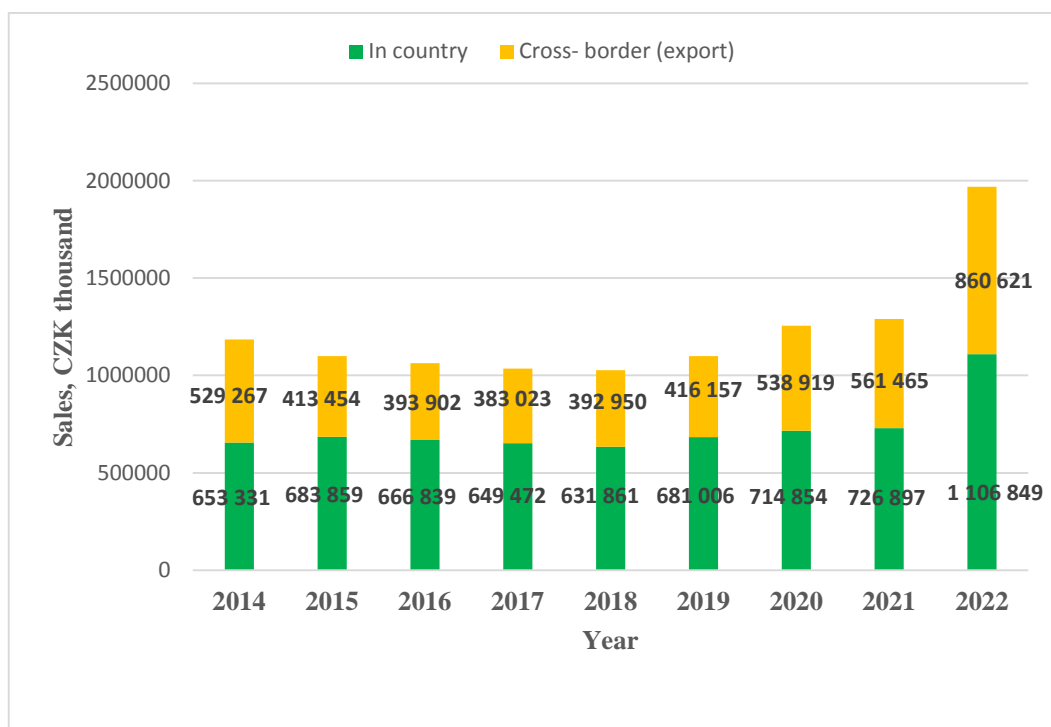
Table 20: Business result of the company's sales 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

In country	2014	2015	2016	2017	2018	2019	2020	2021	2022
Pasta sales, tonnes	55 676	49 390	51 004	51 694	51 101	51 900	60 510	58 127	64 481
Milled wheat, tonnes	44 227	47 261	49 165	46 470	44 433	47 834	50 700	48 488	51 481
Milled rye, tonnes	6 173	6 868	6 039	6 602	6 044	5 963	–	–	–

The in – country sales indicator I chose showed that for 9 years the priority of sales to the domestic market, although from 2020 a significant increase in exports begins from

38 % to 43 %. The maximum high sales rate is indicated in 2022, the growth was 52.3 % for the sale of 64,481 tonnes of pasta (an increase of 11 % compared to 2021) and 51,481 tonnes of milled wheat (up 6 % compared to the previous year). In the previous year, 58,127 tonnes of pasta and 48,488 tonnes of milled wheat were sold. This happened due to an increase in food prices and inflation in the country.



Graph 4: In – country sales 2014–2022
(Source: Own elaboration)

Time series characteristic

Table 21 : Development of in–country sales 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

Year (t)	x	Sales, CZK thousand	di (y)	ki(y)
2014	1	653 331	—	—
2015	2	683 859	30 528	1,05
2016	3	666 839	−17 020	0,98
2017	4	649 472	−17 367	0,97
2018	5	631 861	−17 611	0,97
2019	6	681 006	49 145	1,08
2020	7	714 854	33 848	1,05
2021	8	726 897	30 528	1,02
2022	9	1 106 849	379 952	1,52
Average			723 885	

In the following Table 21, the first difference is calculated, which showed an increase in sales by CZK 453,518 thousand or by 40 %. The average value of sales is CZK 723,885 thousand. The time series of the in – country sales is best described by a second – degree polynomial regression line.

Coefficients

Table 22: Coefficients of in – country sales 2014–2022
(Source: Own elaboration)

Coefficient	Standard error	t – value	p – value (F)	Determination coefficient
β_1	105 673	7.63	0.014	0.76
β_2	48 521	–2.16		
β_3	4 732	2.94		

The coefficient of determination in this case is 56 %. The p – value is less than the significance value ($0.014 < 0.05$), the model has explanatory power. The p – value indicates the probability that the null hypothesis is false, in repeated sample.

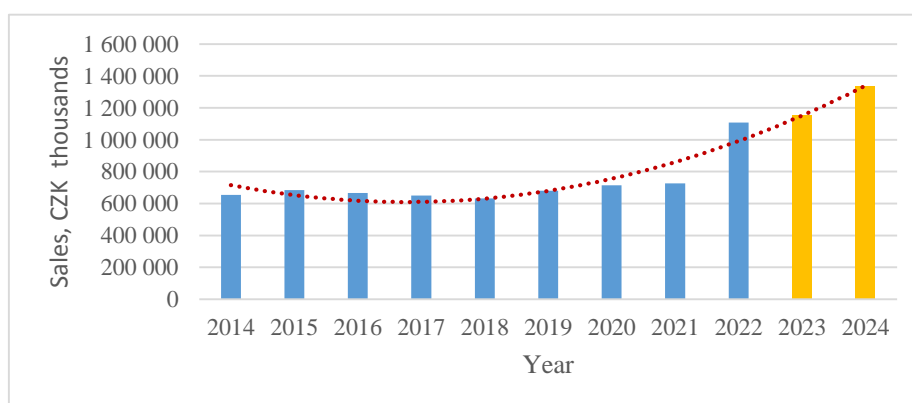
Trend description

A suitable function for indicators of in – country sales appears to be a second – degree polynomial regression line, which has the following equation:

$$\eta(x) = \beta_0 + \beta_1 \cdot x + \beta_2 \cdot x^2$$

$$y = \eta(x) = 806312 - 104572 \cdot x + 13908 \cdot x^2$$

Prediction for 2023 and 2024 year



Graph 5: Regression analysis and trend of in–country sales 2014–2024
(Source: Own elaboration)

Table 23 : Prediction of in-country sales for 2023 and 2024 year

(Source: Own elaboration)

Timeline	Forecast, CZK thousand	Lower limits	Upper limit
2023	1 151 437	892 865	1 410 008
2024	1 338 943	958 508	1 719 377

In Table 23, the expected in – country sales for the financial year 2023 amount to CZK 1.151 million. The interval for the upper and lower bounds was set at (0.082;1.410). For the economic year 2024, the predicted data are in the range (0.958;1.719), while the preliminary value should be CZK 1.338 million.

2.5.5 Regression analysis of Altman’s bankruptcy model

Altman's bankruptcy model, or the index of the company's financial health, is calculated in Table 22. Altman's model evaluates the prosperity or, conversely, the edge of bankruptcy of the company from a long – term perspective.

Table 24 : Altman’s bankruptcy model 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

Coefficient	2014	2015	2016	2017	2018	2019	2020	2021	2022
x1	−0.22	−0.24	−0.21	−0.10	−0.11	−0.11	−0.11	−0.10	−0.06
x2	−0.04	−0.06	−0.08	−0.05	−0.02	−0.02	−0.01	−0.02	0.03
x3	−0.01	−0.02	0.03	0.03	0.01	0.01	0.02	0.02	0.12
x4	0.14	0.16	0.18	0.21	0.22	0.23	0.28	0.29	0.44
x5	1.34	1.47	1.57	1.44	1.50	1.63	2.02	1.92	2.41

Table 25 : Zone of Altman’s bankruptcy model for 2014–2022

(Source: Own elaboration)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Z – score	1.26	1.27	1.98	2.00	1.51	1.66	2.09	2.04	2.93
Zone	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Safe

Whole period (2014–2021) the company was in grey zone, where company was with an undefined financial and economic situation. And the last year of analysis shows that the company is in the safe zone, it is a of prosperity above 2.93, where there is a high probability that bankruptcy is not threaten.

Time series characteristic

Table 26 : Development of Altman's bankruptcy model 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

Year (t)	x	Altman's bankruptcy model	di (y)	ki(y)
2014	1	1.26	—	—
2015	2	1.27	0.01	1.01
2016	3	1.98	0.71	1.56
2017	4	2.00	0.01	1.01
2018	5	1.51	−0.48	0.76
2019	6	1.66	0.15	1.10
2020	7	2.09	0.43	1.26
2021	8	2.04	−0.05	0.97
2022	9	2.93	0.90	1.44
Average		1.86		

In the table of the development of Altman's bankruptcy model in the monitored period in the years 2014–2022, we can observe that this coefficient decreased at the end of the monitored period compared to the value from 2014 by 1.67 from 1.26 to 2.93. The highest increase in the coefficient occurred in 2022, when its value changed by 0.9. On the contrary, the highest decrease of this coefficient occurred in 2018, when its value fell by 0.49. Will be used linear regression to predict further development.

Coefficients

Table 27 : Coefficients of Altman's bankruptcy model 2014–2022

(Source: Own elaboration)

Coefficient	Standard error	t – value	p – value (F)	Determination coefficient
β_1	0.2492	4.498	0.0411	0.66
β_2	0.0443	3.339		

The coefficient of determination in this case is 66 %. The p – values are also below the significance level of $\alpha = 0.05$, it means that there is sufficient evidence to reject the null hypothesis, which states that there is no relationship between the variables.

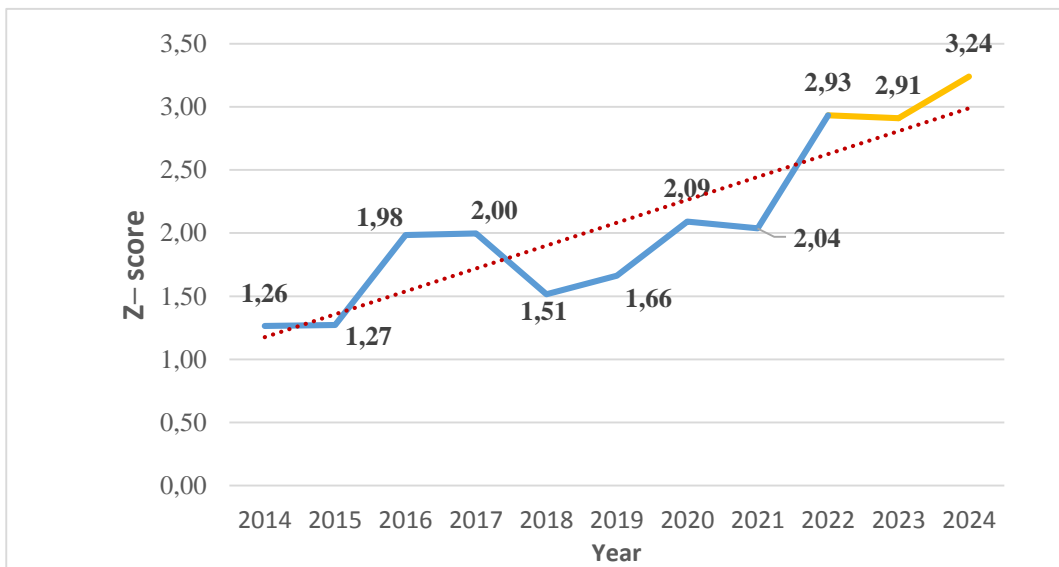
Trend description

A suitable function for total indebtedness is linear regression, which has the following equation:

$$\eta(x) = \beta_0 + \beta_1 x$$

$$y = \eta(x) = 1.1208 - 0.1478 \cdot x$$

Prediction for 2023 and 2024 year



Graph 6: Regresion analysis and trend of Altman's bankruptcy 2014–2024
(Source: Own elaboration)

Table 28 : Prediction of Altman's bankruptcy for 2023 and 2024 year
(Source: Own elaboration)

Timeline	Forecast	Lower limits	Upper limit
2023	2.91	1.82	3.99
	Safe zone	Grey zone	Safe zone
2024	3.24	1.63	4.84
	Safe zone	Grey zone	Safe zone

In the predicted two years, the company should be in the zone of prosperity. For the economic year 2023, the value is set at 2.91 (safe zone), the upper and lower limits are in the interval $\langle 1.82; 3.99 \rangle$. In the 2024 financial year, the value of the Altman's model was calculated at 3.24 with an upper and lower bound from 1.63 to 4.84. Altman's model confirmed the company has good financial health.

2.5.6 Regression analysis of costs (consumed material and energy)

Costs refer to the expenses incurred by a company or individual in the process of producing goods, providing services, or conducting business operations. Costs are an essential component of financial analysis and decision – making, as they directly impact profitability and the overall financial health of an entity. Understanding and managing costs is crucial for businesses to optimize profitability and make informed decisions.

Table 29 : Costs 2014 – 2018

(Source: Own elaboration from annual reports of Europasta SE)

Costs	2014	2015	2016	2017	2018
Purchased consumables and services	1 020 536	958 838	868 877	843 938	958 838
Consumed material and energy	857 790	813 645	737 316	705 506	724 904
Services	162 746	145 193	131 561	138 432	141 754
Staff costs	101 701	101 669	108 779	116 669	118 793
Other operating expenses	25 013	3 562	8 709	7 639	6 765
Interest expenses and similar expenses	12 334	9 507	9 074	9 979	6 756
Other financial expenses	9 120	9 130	6 067	6 891	7 395
Total	1 168 704	1 082 706	1 001 506	985 116	1 098 547

Table 30 : Costs 2019–2022

(Source: Own elaboration from annual reports of Europasta SE)

Costs	2019	2020	2021	2022
Purchased consumables and services	937 868	1 041 630	1 104 620	1 676 590
Consumed material and energy	789 024	876 107	950 048	1 474 262
Services	148 844	165 523	154 572	202 328
Staff costs	122 482	130 874	127 203	151 728
Other operating expenses	15 102	6 478	5 579	6 768
Interest expenses and similar expenses	7 226	4 779	5 202	13 391
Other financial expenses	3 785	18 889	8 093	13 729
Total	1 086 463	1 202 650	1 250 697	1 862 206

Table 31 : Consumed material and energy for 2014–2022

(Source: from annual reports of Europasta SE)

Consumed material and energy	2014	2015	2016	2017	2018	2019	2020	2021	2022
	857 790	813 645	737 316	705 506	724 904	789 024	876 107	950 048	1 474 262

Purchased inventory is valued at acquisition cost. Acquisition cost includes the purchase cost and indirect acquisition costs such as customs fees, freight costs, storage fees, commissions, insurance charges and discounts, transportation costs, forwarding costs, postage, packing charges, commissions, etc.

Work in progress and finished products are stated at cost which includes the cost of material, labour, actual direct services purchased and production overhead costs. Services represent payments to external suppliers for services. These mainly include transport costs, storage costs, external repairs and marketing costs. But we choose "Consumed material and energy", because it is the plant and it has a lot of machines (line Pavan L4, Bühler L1, Pavan L3 line) for production, packing products and every machine need a lot of energie. Consumed material and energy is between 85 % (2017) and 90 % (2022) of all costs.

Time series characteristic

Table 32 : Development of material and energy costs 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

Year (t)	x	Costs	di (y)	ki(y)
2014	1	857 790	–	–
2015	2	813 645	– 44 145	0.95
2016	3	737 316	–76 329	0.91
2017	4	705 506	–31 810	0.96
2018	5	724 904	19 398	1.03
2019	6	789 024	64 120	1.09
2020	7	876 107	87 083	1.11
2021	8	950 048	73 941	1.08
2022	9	1 474 262	524 214	1.55
Average		880 956		

In the table of the development of costs in the monitored period in the years 2014–2022, we can observe that this coefficient decreased at the end of the monitored period compared to the value from 2014 by 616,472 from CZK 857,790 thousand to CZK

1,474,262 thousand. The highest increase in the coefficient occurred in 2022, when its value changed by 524 214. On the contrary, the highest decrease of this coefficient occurred in 2016, when its value fell by CZK −76 329 thousand. Will be used linear regression to predict further development.

The time series of the in – country sales is best described by a second – degree polynomial regression line.

Coefficients

Table 33: Coefficients of material and energy costs 2014–2022

(Source: Own elaboration)

Coefficient	Standard error	t – value	p – value (F)	Determination coefficient
β_1	115126	9.589	0.001	0.89
β_2	52862	−4.063		
β_3	5156	5.213		

The coefficient of determination in this case is 89 %. The p – value is less than the significance value ($0.001 < 0.05$), the model has explanatory power. The p – value indicates the probability that the null hypothesis is false, in repeated sample.

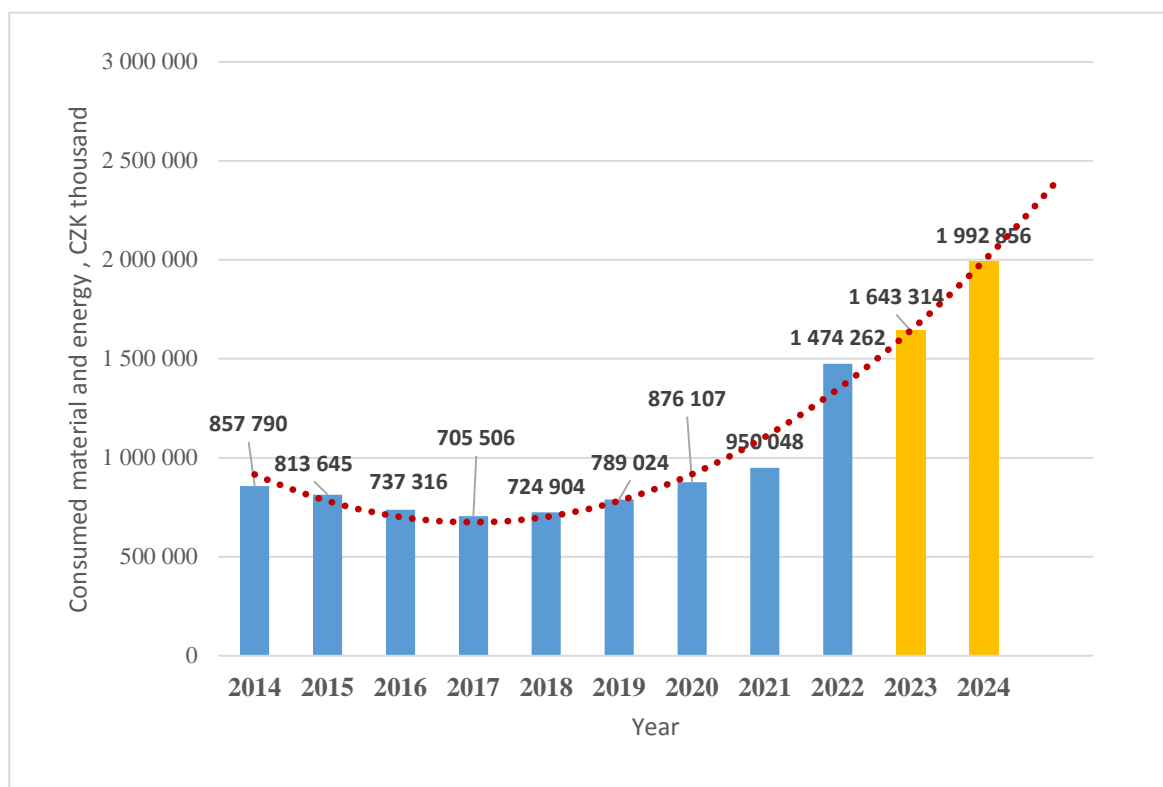
Trend description

A suitable function for indicators of in – country sales appears to be a second – degree polynomial regression line, which has the following equation:

$$\eta(x) = \beta_0 + \beta_1 \cdot x + \beta_2 \cdot x^2$$

$$y = \eta(x) = 1103948 - 214795 \cdot x + 26873 \cdot x^2$$

Prediction for 2023 and 2024 year



Graph 7: Regression analysis and trend of material and energy costs 2014–2024
(Source: Own elaboration)

Table 34 : Prediction of in-country sales for 2023 and 2024 year
(Source: Own elaboration)

Timeline	Forecast	Lower limits	Upper limit
2023	1 643 314	1 361 610	1 925 018
2024	1 992 856	1 578 386	2 407 325

In Table 34, the expected material and energy costs for the financial year 2023 amount to CZK 1.643 million. The interval for the upper and lower bounds was set at (1.362;1.925). For the economic year 2024, the predicted data are in the range (1.578;2.407), while the preliminary value should be CZK 1.993 million.

2.5.7 Regression analysis of maturity of receivables

The company did not achieved recommended values for liquidity during the whole period, because there are high values of current receivables.

Table 35: Receivables 2014–2022

(Source: Own elaboration)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Long – term receivables	45	45	45	5 704	8 660	2 067	367	23	23
Short–term receivables	185	134	123	144	185	148	142	181	301
	853	049	696	049	247	344	431	114	869
Maturity current liabilities	57	45	43	51	60	48	40	49	54

Table 36 : Development of recivables 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

Year (t)	x	Maturity of receivables, days	di (y)	ki(y)
2014	1	57	—	—
2015	2	45	–12	0.79
2016	3	43	–2	0.96
2017	4	51	8	1.19
2018	5	60	9	1.18
2019	6	48	–12	0.80
2020	7	40	–8	0.83
2021	8	49	9	1.23
2022	9	54	5	1110
Average		49.67		

Table 36 shows that there was an increase in the value of the time to maturity of receivables indicator at first, and from 2014 the value decreased until 2018, when it increased again. The highest value was reached in 2018 and the lowest in 2020. The highest decrease was recorded in 2015 and 2019, where the value decreased by 12 days compared to the previous year. The highest increase were in 2018 and 2021 by 9 days. The average value of the indicator for the whole period under review was 49.67 days.

Coefficients

Table 37 : Coefficients of maturity of liabilities 2014–2022

(Source: Own elaboration)

Coefficient	Standard error	t – value	p – value (F)	Determination coefficient
β_1	9.63	0.001	0.01	0.815
β_2	0.045	0.013		

The coefficient of determination in this case is 81.5 %. The p – values are also below the significance level of $\alpha = 0.05$, it means that there is sufficient evidence to reject the null hypothesis, which states that there is no relationship between the variables.

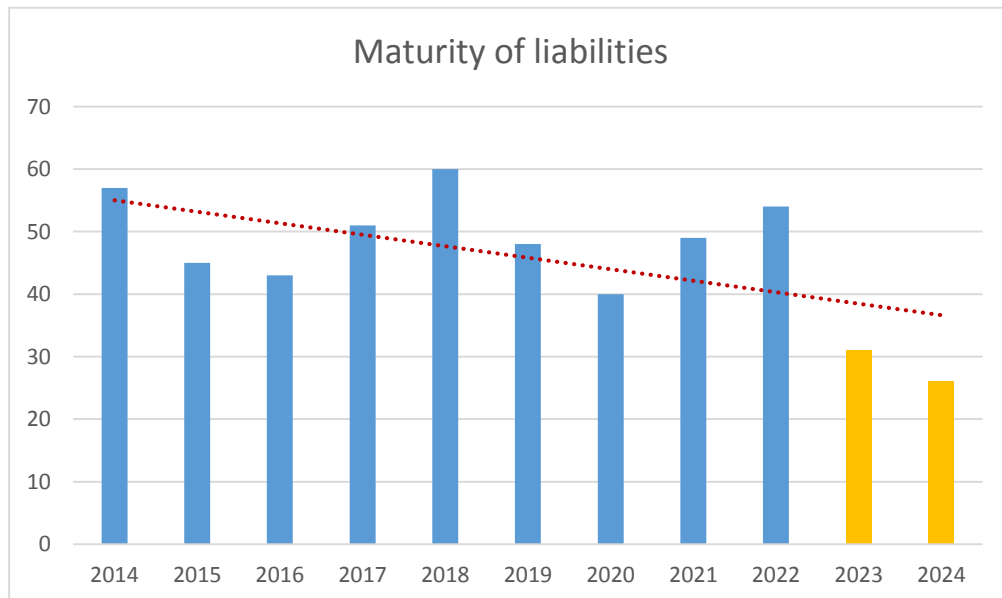
Trend description

A suitable function for total indebtedness is linear regression, which has the following equation:

$$\eta(x) = \beta_0 + \beta_1 \cdot x$$

$$y = \eta(x) = 50.55 - 0.1915 \cdot x$$

Prediction for 2023 and 2024 year



Graph 8: Regression analysis and trend of Maturity of liabilities 2014–2024

(Source: Own elaboration)

Table 38 : Prediction of total indebtedness for 2023 and 2024 year

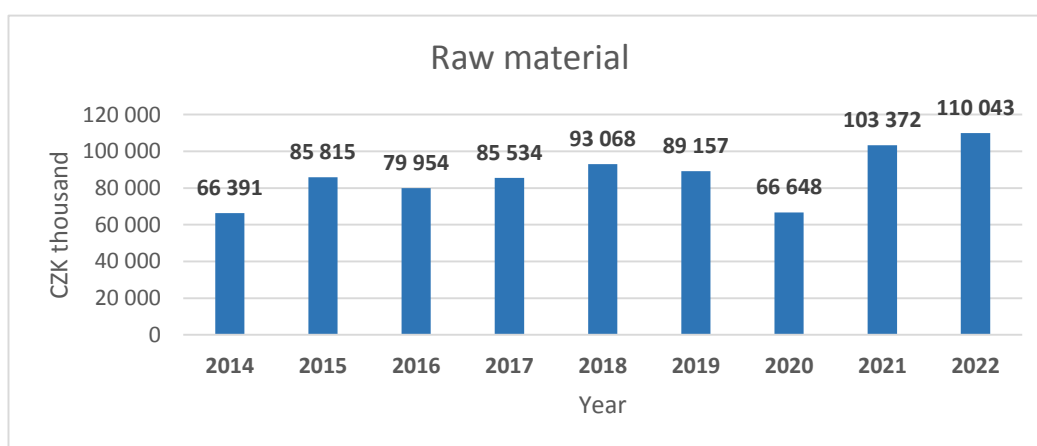
(Source: Own elaboration)

Timeline	Forecast,days	Lower limits	Upper limits
2023	31	28	34
2024	26	23	29

Table 38 shows the data for the following two economic years, where in 2023 the value was calculated at 31. The interval in which the values can vary this year is in the range (28; 34). For the economic year 2024, the predicted data are in the range (23; 29), while the preliminary value should be 26.

2.6 Raw material

As for the quality of the products offered, the company has a very wide range on offer — soft wheat pasta (egg, eggless or rolled) or pasta made from semolina. The material mainly consists of stocks of grain, packaging and flour.



Graph 9 : Raw material 2014–2022

(Source: Own elaboration from annual reports of Europasta SE)

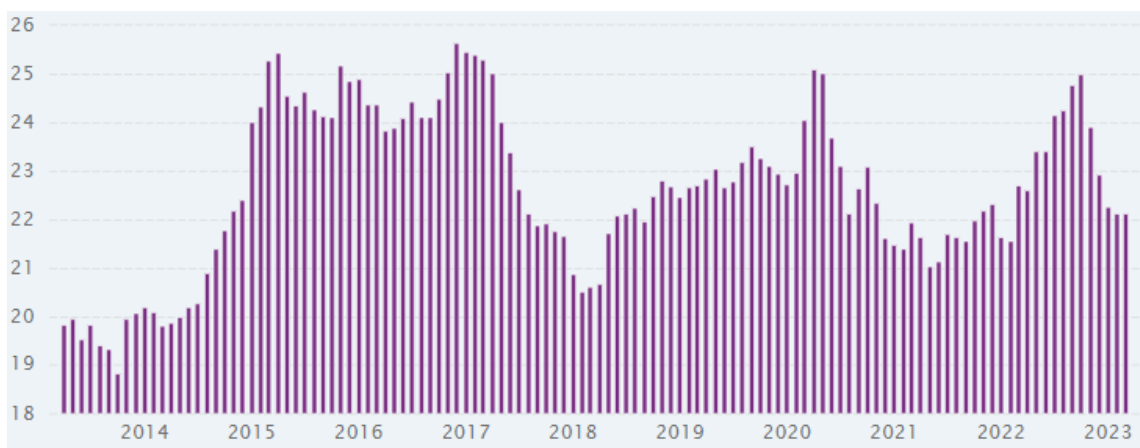
Purchased material (in this case, it is the purchase of the basic production raw material – grain) and the value of products in stock. In both cases, there was a significant increase in value reported in 2019 compared to the value reported in 2014. For the purchased raw material in 2022, a value of approx. CZK 110 million is recorded — which represents an increase by approximately CZK 7 million compared to 2021. While decreasing in value of long — term assets is the natural and seemingly low value of long — term assets of assets may signal that the company is in the pre—investment cycle phase

– that it will be necessary to invest in new production equipment, depreciation of trade receivables is a clearly positive finding. On the other hand but it is necessary to point out that the accumulation of stocks in the warehouse can be evaluated rather negatively, because the products contain value and this fact signals the fact that the company was not able to sell its entire production of products.

The increasing value of the purchased material (in this case production raw materials — mainly food wheat) can also be evaluated rather negatively. But if we take into account the management's concerns about the jump in the price of entry raw materials for the production of pasta, which prevail every year during the autumn months.



Picture 3 : Wheat Prices — 10 Year Historical Chart (Source: Macrotrends, 2023)



Picture 4 : Czech Republic's Exchange Rate USD/CZK (2014–2023)
(Source: Ceicdata, 2023)

The graph above shows the development of the average price (in USD) of wheat in period 2014–2022, inclusive, per bushel. A bushel is old average annual price in USD per 1 bushel, reporting period volume unit that is still used today on Anglo–American commodity exchanges (1 bushel = 27.2 kg).

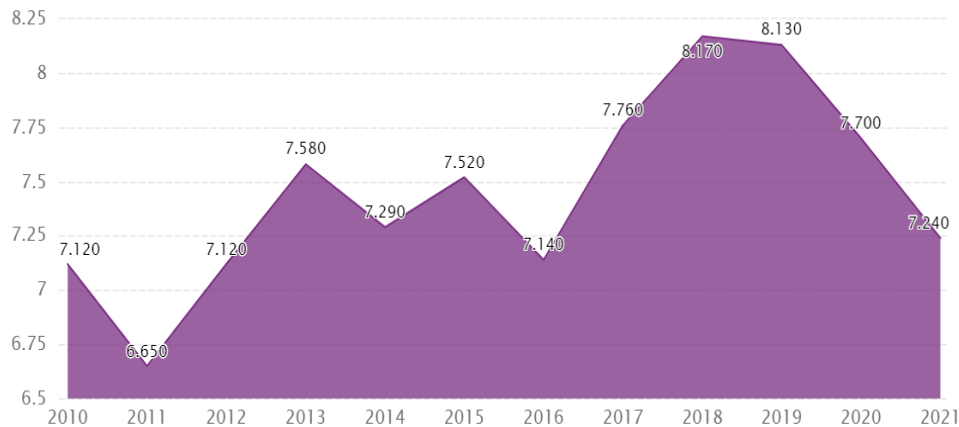
It is clear to see from the graph that the price has been growing since 2017, which is why management's efforts to buy raw materials cheaper can be made mark as justified. The most expensive price of this period was \$12.09 per bushel (28 February 2022), the current price of wheat as of May 5, 2023 is \$6.9732 per bushel. Usually, during the summer period, wheat prices decrease (with the exception of last year's crop failure) and plant managers have a huge opportunity to buy wheat at a more attractive price and stock up for the fall and at a perspective exchange rate (Picture 4).

2.7 Czech Republic's consumption

Pasta

From the point of view of the definition and attractiveness of the pasta market, definition is essential market size and future outlook on its development. Generally, pasta makers by belonging among food companies, they do not have to worry about the size of the market somehow negatively changed — pasta is an irreplaceable and overwhelming figure in the menu today most people in most parts of the world.

Web article The Global Pasta Market wrote that the Impact of COVID – 19 in the Medium Term (Researchandmarkets, 2021) even reports that the global pasta market will grow by just under 5 % annually and in 2024 should reach a value exceeding USD 100 billion. Most of its production Europasta SE delivers for customers in the Czech Republic (roughly 55 %) and here in 2019–2021 (Picture 5) the average number of kilograms of pasta consumed reached person weighing 7.2 – 8.1 kg. This figure represents a roughly 15 % increase compared to value from 2010 – from Picture 5, the rising consumption trend is clearly visible until 2019, but after the indicator is declining and get value of 2016: 7.14 kg.



Picture 5: Czech Republic Consumption: Pasta
(Source: Ceicdata, 2023)

2.8 Overall assessment

The last subchapter of the analytical part of the thesis focuses on a brief evaluation of the financial and statistical analysis of the company for the period 2014 to 2022. Now we will look at the overall evaluation of the developed analysis. We'll go through them all discussed indicators, but this time we will focus only on the most important results.

Profitability

The return on assets (ROA) can be used to assess how efficiently a company is using its assets. From the table 10, we can see positive values throughout the period under review, so the company was able to make a profit. The highest value was achieved in 2022, when CZK 0.11 profit per CZK 1 of total assets. On the other hand, the lowest value, when only CZK 0.05 profit per CZK of total assets was achieved in the first year under review. Compared to the sector, the company, except for 2016–2017 then from 2019, achieved higher values.

Return on Equity (ROE) is important to company owners as it reflects the rate of return on equity. Since the beginning of the period under review, the value of this indicator has been increasing until 2018, when the value started to decrease. The ratio was positive throughout the period under review and reached its highest value in 2022, when it was 0.38 CZK profit per 1 CZK of equity. Until 2015, the company had lower values than the industry, while in 2016 and 2017 the values were higher.

Return on sales (ROS) tells us how many CZK of profit per CZK of sales. Again, these were positive values throughout the period, with the lowest value being achieved in the first two year under review. The values have more or less increased since the beginning of the reporting period, with a decrease in 2018. The best year was 2022, where the profit per CZK of sales was CZK 0.05. In terms of comparison with the industry, the company showed lower values, except for 2018 and 2019.

Total indebtedness

In the table of the development of the coefficient of total indebtedness in the monitored period in the years 2014–2022, we can observe that this coefficient decreased (shows a downward trend) at the end of the monitored period compared to the value from 2014 by 18.18 % percentage points, from 87.98 % to 69.39 %. The highest increase in the coefficient occurred in 2015, when its value changed by 0.48. On the contrary, the highest decrease of this coefficient occurred in 2022, when its value fell by 7.82.

The recommended value of the total indebtedness ratio is given in the range of 30 to 60 %. The average value of total indebtedness for the period under review was 81.38 % because of high liabilities. Total indebtedness has been declining since 2015 year under review until 2022, when it increased by 1 % compared from 2014 to 2015, the highest increase over the whole period under review. The largest decrease of 5 % occurred in 2015. The highest indebtedness was in 2015, with a value of 87.98 %. On the other hand, the lowest value of 69.39 % was achieved in 2022.

Raw material

The rising of durum wheat's prices became a fundamental problem, mainly influenced by the crop failure in the key growing country – Canada. The price development of the second key commodity, food wheat, was also relatively rapid in the last quarter of the year. The cost development subsequently became essential for the company's further business steps on the market, associated with the increase in the price of our products.

Consumed material and energy

Plant has a lot of machines (line Pavan L4, Bühler L1, Pavan L3 line) for production, packing products and every machine need a lot of energie. Consumed material and energy is between 85 % (2017) and 90 % (2022) of all costs.

Coefficient decreased at the end of the monitored period compared to the value from 2014 by 616 472 from CZK 857 790 thousand to CZK 1 474 262 thousand. The highest increase in the coefficient occurred in 2022, when its value changed by 524 214. On the contrary, the highest decrease of this coefficient occurred in 2016, when its value fell by CZK –76 329 thousand.

Bankruptcy model

The results of Altman's Z – score were not high above the boundary between the bands, which tells us that the company is almost in the prosperity band and we can predict a satisfactory financial situation. For perspective, the Altman Z – score was around the 2.93, with the boundary between the prosperity zone and the grey zone at 2.9.

The result of Altman's model confirmed the financial health and the unlikelihood of bankruptcy of the company in the next two economic years.

In – country sales

The expected in – country sales for the financial year 2023 amount to CZK 1.151 million. The interval for the upper and lower bounds was set at (0.082;1.410). For the economic year 2024, the predicted data are in the range (0.958;1.719), while the preliminary value should be CZK 1.338 million.

The maturity of current liabilities

The value of the time to maturity of liabilities indicator at first, and from 2014 the value decreased until 2018, when it increased again. The highest value was reached in 2018 and the lowest in 2020. The highest decrease was recorded in 2015 and 2019, where the value decreased by 12 days compared to the previous year. The highest increase were in 2018 and 2021 by 9 days. The average value of the indicator for the whole period under review was 49.67 days. data for the following two economic years, where in 2023 the

value was calculated at 31. The interval in which the values can vary this year is in the range (28; 34). For the economic year 2024, the predicted data are in the range (23; 29), while the preliminary value should be 26.

Preparedness for unexpected situations

2020

The pandemic crisis that began in January 2020 has clearly affected the operations of countless companies operating in the business world. The situation was uncertain and no one knew what would happen. Europasta Se was no exception to this unprecedented situation. Europasta SE's volumes increased in the initial months of the pandemic sales and thus total revenues.

2021

Covid-19, disrupted supply chains and the coming inflationary environment in the economy. In particular, this trend brought pressure on input prices to the company, basically in most key cost items. Of those, the rise in prices of durum wheat became a fundamental problem, mainly influenced by the crop failure in the key growing country – Canada.

2022

Conflict in Ukraine significantly affected, in particular, the cereals sector, which is crucial for company. The Russian invasion was closely followed by a sharp increase in cereal prices, particularly common wheat.

3 SUGGESTIONS

3.1 Electricity costs

Electricity costs refer to the expenses incurred by individuals or businesses for the consumption of electricity resources such as electricity, gas, fuel, or other forms of electricity. These costs are associated with powering various activities, including residential, commercial, and industrial operations.

Electricity costs can be a significant portion of the overall expenses for households and businesses, and they can vary depending on factors such as electricity consumption levels, electricity prices, geographical location, and the type of electricity sources used

These costs depend on the electricity consumption for lighting, heating, cooling, appliances, and other electrical devices. Commercial buildings, manufacturing facilities, transportation companies, and data centers are examples of businesses that may have significant electricity costs.

B 2000 production line

B 2000 production line is located in the branch — Bratři Zátkové (unit 1900) and has been classified as second depreciation group under : Food and beverage machinery and for tobacco processing. Line B2000 is designed for the production of short pasta, which includes in particular spindles, cakes, penne, flecks.

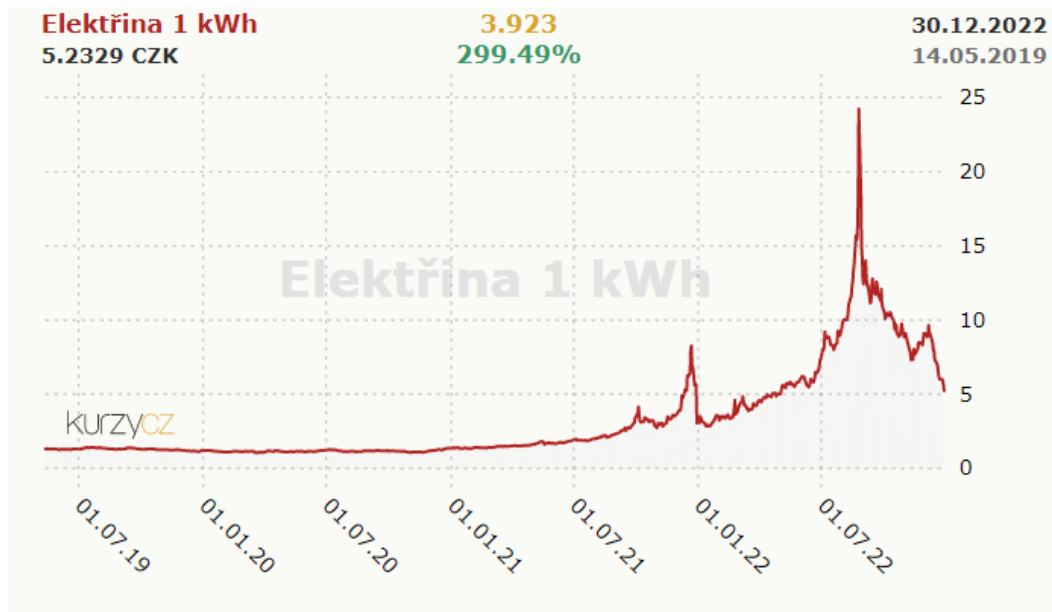
B 2000 pre — dryer and dryer

The production line B 2000 of short pasta production line, pre — dryer and dryer is located in the branch — Bratři Zátkové. It was classified in the second depreciation group: Machinery for food and beverage production and tobacco processing (in this case, a machine for the production of short pasta).

The automatic stackering system

The automatic stacker system is located in branch — Adriana in Litovel. Other lifting, handling, loading lifting, handling or unloading equipment. The automatic stacker system consists of ten tiers of racks for individual pallets, between which two automatic

stackers (robots) are placed on rails performing all the operations related to the movement of goods in the warehouse).



Picture 6 : Evolution of the average electricity's price per 1 kWh for 2019–2022 in CZK

(Source: kurzy.cz, 2023)

From April 2021, we may see an increase in electricity prices that then began to increase by leaps and bounds from October onwards. From an initial price of 1.5084 CZK per kWh to 9 April 2021, the price of electricity rose to 2.3199 CZK per kWh on 1 September 2021 and then to CZK 5.6002 CZK per kWh on 6 May 2022 (over 371 % of the electricity price). For a better overview, we can look at the following figure, showing the evolution of electricity prices over the last three years (Website kurzy.cz, 2023)

Table 39 : Average machine's consumption

(Source: Own elaboration from internal documentation Europasta SE, 2023)

Branch	Name	Average consumption
Boršov nad Vltavou	B2000 production line (1500 kg/h)	100 kW
	B2000 pre-dryer and dryer	10 kW
	Packing machine	15 kW
	Pavan L 4 production line (1000 kg/h)	85 kW
	Cut pasta line (1000 kg/h)	90 kW
	Other	5 kW
	Total	305 kW
Litovel	Automatic stacking system	80 kW
	Pavan L 4 production line (1000 kg/h)	85 kW
	Buhler L 1 line pasta (500 kg/h)	50 kW
	Cut pasta line (2000 kg/h)	110 kW
	B2000 pre-dryer and dryer	10 kW
	Packing machine Fawema	55 kW
	Other	5 kW
Total	395 kW	
	Total	700 kW

Table 39 shows the average consumption of the two plants in Litovel and in Boršov nad Vltavou. The consumption at the plant (in Litovel) is slightly higher, because they are producing the main products of the company Europasta SE and the plant in Boršov nad Vltavou produces neither part of the range of pasta products nor the flour.

The high consumption's rate at the plant in Boršov nad Vltavou at B2000 production line (1500 kg/h) – 100 kW, then the cut pasta line (1000 kg/h) – 90 kW. The cut pasta line (2000 kg/h) – 110 kW, and Pavan L 4 production line (1000 kg/h) takes 85 kW at the plant in Litovel most of the electricity.

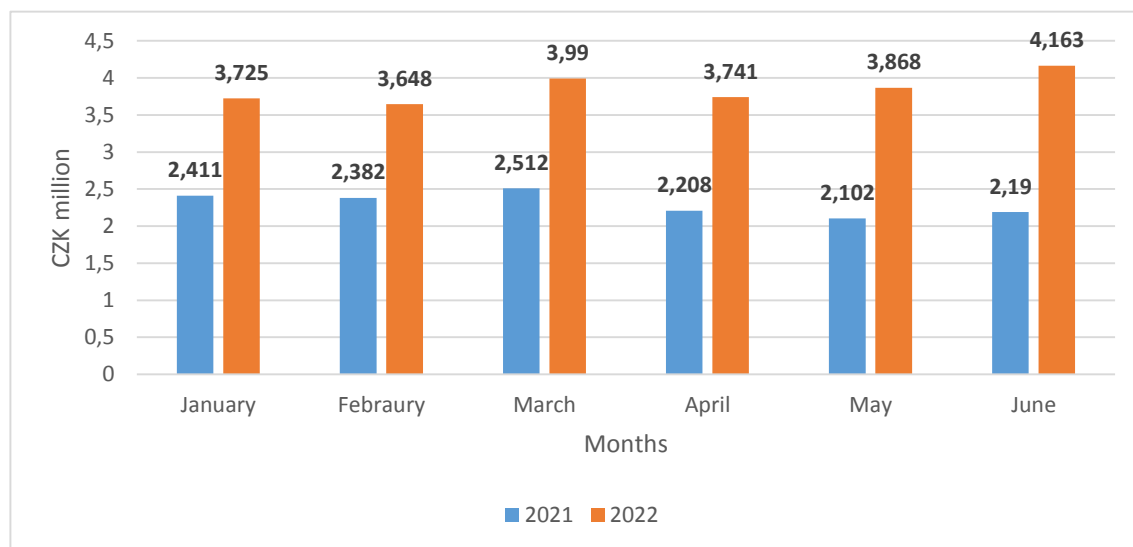
Table 40 : Electricity cost Europasta Q1, Q2 2021–2022

(Source: Own elaboration from internal documentation Europasta SE, 2023)

Years	CZK million					
	January	February	March	April	May	June
2021	2.411	2.382	2.512	2.208	2.102	2.190
2022	3.725	3.648	3.99	3.741	3.868	4.163

The 2022 electricity costs of Q1, Q2 have increased by almost 45–50%, due to what is happening in the world (energy crisis, rising inflation).

The highest value for 2 quarters of 2022 was in June , with a value of CZK 4.163 million. On the other hand, the lowest value of CZK 3.648 million was achieved in February.



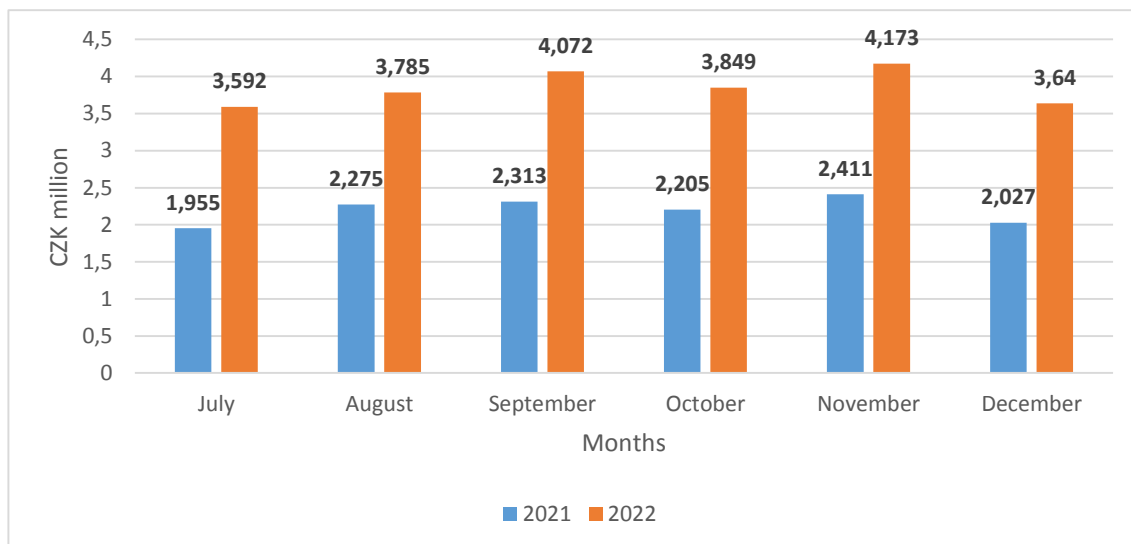
Graph 10: Electricity cost Europasta Q1, Q2 2021–2022
(Own elaboration from internal documentation Europasta SE, 2023)

Table 41 : Electricity cost Europasta Q3, Q4 2021–2022
(Source: Own elaboration from internal documentation Europasta SE, 2023)

Years	CZK million					
	July	August	September	October	November	December
2021	1.955	2.275	2.313	2.205	2.411	2.027
2022	3.592	3.785	4.072	3.849	4.173	3.640

The 2022 electricity costs of Q3,Q4 also have increased by almost 45–50%, due to what is happening in the world (energy crisis, rising inflation).

The highest value for 2 quarters of 2022 was in November (usually at that time is happen increasing price) with a value of CZK 4.173 million. On the other hand, the lowest value of CZK 3.592 million was achieved in July.



Graph 12: Electricity cost Europasta Q3, Q4 2021–2022
 (Own elaboration from internal documentation Europasta SE, 2023)

The 2022 electricity costs of Q3, Q4 also have increased by almost 45–50%, due to what is happening in the world (energy crisis, rising inflation).

The highest value for 2 quarters of 2022 was in November (usually at that time is happen increasing price) with a value of CZK 4.173 million. On the other hand, the lowest value of CZK 3.592 million was achieved in July.

The highest value for 2022 year was in November with a value of CZK 4.173 million. On the other hand, the lowest value of CZK 3.592 million was achieved in July.

Implementing electricity management strategies, such as electricity – efficient equipment, renewable electricity sources, and electricity conservation measures, can help businesses reduce their electricity costs and improve sustainability.

In a photovoltaic system, the electricity production costs are mainly determined by the investment costs, as there are no fuel costs and no operating costs. The economic efficiency of a PV system is determined when the profits from the reimbursement of the energy supply to the grid are higher than the expected costs of setting up and operating the PV system over a given time period. Appropriate calculation programs can be used to calculate the return on capital employed. It is clearly evident that a high self-consumption quota improves the system's rendering because the savings achieved by not taking electricity from the grid are high. A study by the German institute IOW indicates that, as a rule, about 20 to 40 % of the energy generated can be used for self-consumption without

batteries. A larger part of the energy produced must then be fed into the grid. By incorporating battery energy into the PV system, the efficiency of the whole system is increased to 60-90 %.

It is difficult to find price of the solar panel for plants, but we can to calculate it due to offer for every citizen.

Maxi balíček
 Maxi soběstačnost a využití sluneční energie
 + Více o balíčku



SOLAX POWER

	Celkový výkon	9,9 kWp
	Výkon FVE panelu	450 W
	Počet panelů	22 ks
	Baterie	11,6 kWh

Cena před dotací
525 665Kč

Cena po dotaci
320 665 Kč

Picture 7: Solar panel's offer from company Solax,
(Website Solax, 2023)

Table 42 : Solar panel's offer
(Own elaboration, 2023)

Boršov nad Vltavou	Litovel	Total
305 kW / 450 W = 677 panels	395 kW /450 W = 878 panels	700 kW / 450 W = 1 555 panels
677 panels / 22 items = 31 sets	878 panels / 22 items = 40 sets	1 555 panels / 22 items = 71 sets
31 sets · CZK 320.665 = CZK 9.94 millon	40 sets · CZK 320.665 = CZK 12.86 million	CZK 22.8 million
Subvention 250.000 · 31 sets	Subvention 250.000 ·40 sets	Subvention CZK 17.75 millon

= CZK 7.75 million	= CZK 10 million	
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They need investice CZK 22.8 million (= annual elektricity cost for 2021 year).

Table 43: Calculation of the cumulative discounted annual savings through investment in photovoltaics system

(Source: Own elaboration from internal documentation Europasta SE, 2023)

Years		Investice, CZK	Costs, CZK	%	Discounted annual savings, CZK	Cumulative Discounted annual savings, CZK
2022	0	22 800 000	2 800 000	100	2 800 000	-
2023	1		2 800 000	99,2	3 108 000	5 908 000
2024	2		2 800 000	98,4	3 449 880	6 557 880
2024	3		2 800 000	97,6	3 829 367	7 279 247
2025	4		2 800 000	96,8	4 250 597	8 079 964
2026	5		2 800 000	96	4 718 163	8 968 760
2027	6		2 800 000	95,2	5 237 161	9 955 324
2028	7		2 800 000	94,4	5 813 248	11 050 409
2029	8		2 800 000	93,6	6 452 706	12 265 954
2030	9		2 800 000	92,8	7 162 503	13 615 209
2031	10		2 800 000	92	7 950 379	15 112 882
2032	11		3 000 000	91,2	9 455 272	17 405 651
2033	12		2 800 000	90,4	9 795 662	19 250 934
2034	13		2 800 000	89,6	10 873 184	20 668 846
2035	14		2 800 000	88,8	12 069 235	22 942 419
2036	15		2 800 000	88	13 396 851	5 738 423

In the previous table we can see the investment costs of a photovoltaic power plant and its potential benefits. The initial investment costs amount to CZK 22.8 million and include materials, installation, project documentation, revisions, licenses, transport handling and connection to the grid connection.

The plant would consist of 71 sets of solar panels with a potential output of 450 Wp mounted on the roof of the brewery with an aluminium structure loaded with concrete tiles. In addition, annual maintenance costs of CZK 2.8 million and the necessary replacement of the switchboard after 10 years at a cost of CZK 200 000 for both plants. Expected lifetime of the solar of the solar panels is guaranteed for 30 years. The potential output of a photovoltaic system built in this way of the photovoltaic power plant is 90 kWp.

In addition, the annual decrease in the output of the solar panels must be taken into account, which is approximately 0,8 %. Since we are not able to estimate the future development of electricity prices, we will assume the current market price as in the

previous proposal, which is The interest rate used to calculate the discounted annual savings we will use again the alternative rate of return we calculated in the first proposal using a modular (rating) WACC model. In this case, we can expect a return on investment at the beginning of the 14th year in 2035, the investment in the photovoltaic plant will pay off for the company.

3.2 Preparedness for unexpected situations

Steps that could be put in place to deal with a possible unexpected crisis situation and to develop successfully in the future:

1) Develop a robust business continuity plan (BCP) that outlines procedures and protocols to be followed in the event of a disruption or crisis. This plan should include strategies for maintaining essential business functions, identifying backup resources, and ensuring the safety of employees and stakeholders.

2) Regularly review and update your preparedness measures to reflect changing risks and circumstances. Continuously monitor and assess potential threats and adapt your strategies and plans accordingly.

3) Develop a communication plan to effectively communicate with employees, customers, suppliers, and other stakeholders during a crisis. This includes establishing communication channels, updating contact information regularly, and providing timely and accurate information about the situation and the actions being taken.

4) Maintain a healthy financial position by having sufficient reserves and cash flow to withstand unexpected disruptions. Establish a contingency fund to cover unforeseen expenses or revenue shortfalls. Regularly review and update financial projections and cash flow forecasts to anticipate potential risks and adjust your financial strategy accordingly.

5) Implement robust data backup and cybersecurity measures to protect your business against data breaches, cyber-attacks, and technological failures. Regularly back up critical data, update security systems, educate employees about cybersecurity best practices, and have a response plan in place in case of a breach.

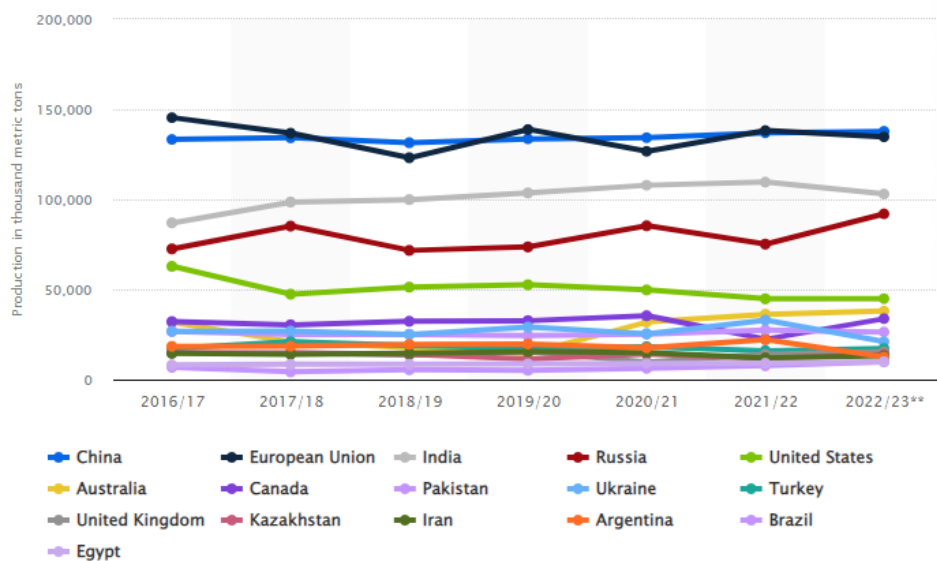
6) Review your insurance coverage to ensure it adequately protects your business against potential risks and liabilities. This may include property insurance, liability insurance, business interruption insurance, and cybersecurity insurance, among others. Understand the scope and limitations of your coverage and make adjustments as needed.

7) Analysis and preparation of a possible future strategy. There are several ways that, for example, through the matrix, create a picture and steps during possible crisis situations that could occur in the future. A pre – prepared crisis strategy can be applied in the event of a sudden situation, giving you a head start over competitors who, for example, have not previously even acknowledged that it might occur, let alone prepared for it.

3.3 Raw material (wheat)

How was mentioned on Annual report (2021), mainly influenced by the crop failure in the key growing country – Canada. The price development of the second key commodity, food wheat, was also relatively rapid in the last quarter of the year.

Wheat prices had risen throughout March and April in 2022 after the Russian invasion of Ukraine, as had the prices of other foodstuffs. Disruption caused by the war means that millions of tonnes of wheat have been unable to leave Ukraine, which is one of the world's biggest exporters.



Graph 10 : Leading wheat producers worldwide from 2016/2017 to 2022/2023
(Source: Statista, 2023)

My suggestion would be for management to review the list of suppliers and try to work with two suppliers (not just Canadian). As you can see in the graph, the leader in wheat production is China.

China is buying more Australian wheat than ever even after diplomatic relations between the two countries frayed in recent years. Australian shipments accounted for 63% of China's wheat imports in the first 10 months of the year, compared with 28% over the whole of 2021 and just 15% the year before (Bloomberg, 2023)

You could also consider another big seller is India. India is the world's second biggest wheat producer, but accounts for less than 1% of the global wheat trade. It keeps a lot of it to provide subsidised food for the poor. India was aiming to boost exports by shipping a record 10 million tonnes of wheat this year - compared with just two million last year.

Logistics can take longer, but in the future it will possible to make an ideal supply plan, alternating delivery times.

CONCLUSION

This thesis dealt with the evaluation of the economic situation of company Europasta SE for period 2014–2022, through selected financial indicators and statistical methods.

The aim of the thesis was to evaluate the financial situation of the company by analyzing selected indicators, performing regression analysis and time series equalization, and based on the results to make a proposal to improve the current situation of the company.

Data from the company's financial statements were used for these calculations. RGui and MS Excel were used for statistical calculations.

The thesis is divided into three parts. In the first one, the theoretical background was developed, which was divided into financial and statistical theory. As far as the financial theory is concerned, the introductory information and the selected indicators used in this thesis were explained. The statistical theory focused on time series analysis, regression analysis. Information was drawn from the literature focusing on this subject.

In the second part, an analysis of the current state of the monitored company Europasta SE was prepared, using selected ratio, difference and summary indicators. Using regression analysis, forecasts for the next two years were determined. At the end of this section, an overall assessment was made.

As the last part of this thesis, the actual suggestions that will lead to the improvement of the economic situation of the company are: find new suppliers, preparing for unexpected situations, saving electricity costs.

The thesis ends with a conclusion and other formal requirements of the thesis, such as a list of references used, list of graphs, list of pictures, list of tables, list of annexes.

The main contribution of this thesis is the suggestions for improving the economic situation of the company, which the company can consider using in its strategic planning for future years.

LIST OF REFERENCES USED

ADRINA, website company. In: *Adriana.cz* [online], © 2023 [Accessed 1 May 2023]. Available at: <https://www.adriana.cz>

BARTOŠOVÁ, J. *Financial Potential of Households. Quantitative Methods and Analyses*. Prague: Professional Publishing, 2013.

Bloomberg [online]. *China Buying More Australian Wheat Than Ever Despite Trade Row*. © 2023 [Accessed 14 May 2023]. Available at: <https://www.bloomberg.com/news/articles/2022-11-21/china-buying-more-australian-wheat-than-ever-despite-trade-row#xj4y7vzkg>

BUDÍKOVÁ, M., M. KRÁLOVÁ a B.MAROŠ. *Průvodce základními statistickými metodami*. Praha: Grada, 2010. Expert (Grada). ISBN 978-80-247-3243-5.

Ceicdata, statistic website In: *ceicdata.com* [online]. *Czech Republic Consumption: per Capita Avg: Food: Pasta* © 2023 [Accessed 1 May 2023]. Available at: <https://www.ceicdata.com/en/czech-republic/food-and-beverage-consumption-per-capita-average/consumption-per-capita-avg-food-cb-bakery-products-pasta>

Commercial Register. In: *Justice.cz* [online] *Europasta SE: annual reports and financial statements 2014–2021*, ©2023 [Accessed 15 May 2023]. Available at: <https://or.justice.cz/ias/ui/vypis-sl-firma?subjektId=695670>

DLUHOŠOVÁ, D. *Financial management and corporate decision-making: analysis, investment, valuation, risk, flexibility*. 2nd, rev. ed. Prague: Ekopress, 2008. ISBN 978-80-86929-44-6.

DLUHOŠOVÁ, D. *Analysis, Investment, Valuation, Risk, Flexibility, Interaction*. 4th ed. Prague: Ekopress, 2021. ISBN 978-80-87865-71-2.

Energy - price a graphs for 3 years. In : *Kurzy.cz* [online], © 2023 [Accessed 15 May 2023]. Available at: https://www.kurzy.cz/komodity/cena-elekriny-graf-vyvoje-ceny/1kwh-czk-3-roky?dat_field=14.05.2019&dat_field2=31.12.2022

GRÜNWARD, R. and J. HOLEČKOVÁ. *Finanční analýzy a plánování podniku*. 1.vydání. Praha: Ekopress, 318 s, 2007. ISBN 978-80-86929-26-2.

HASTIE, T. and G. JAMES, R. TIBSHIRANI, D. WITTEN. *Introduction to Statistical Learning : with Applications in R*. p.426, 2017. ISBN 978-14-614-7137-0

HINDLS, R. *Statistika pro ekonomy*. 8. vyd. Praha: Professional Publishing, 2007. ISBN 978-80-86946-43-6.

IDEAL, website of the company. In: *ideal.sk* [online], © 2023 [Accessed 1 May 2023]. Available at: <http://www.ideal.sk>

KALOUDA, F. *Financial analysis and corporate management*. 2nd extended edition. Plzeň. Aleš Čeněk, s.r.o., 2016. ISBN 978-80-7380.591-3.

KISLINGEROVÁ, E. and J.HNILICA. *Finanční analýza: krok za krokem*. 2. vyd. Praha: C.H. Beck, 2008, xiii. 135 s. ISBN 978-80-7179-713-5.

KNÁPKOVÁ, A., D. PAVELKOVÁ and K. ŠTEKER. *Finanční analýza: komplexní průvodce s příklady*. 2.,rozš. vyd. Praha: Grada, 2013. 236 s. ISBN 978-80-247-4456-8.

KNÁPKOVÁ, A. and D. PAVELKOVÁ, D.REMEŠ, K.ŠTEKER. *Financial analysis: a comprehensive guide with examples*. 3rd edition. Prague: Grada Publishing, 2017. Prosperity of the firm. ISBN 978- 80-271-0563-2.

KROPÁČ, J. *Statistika B: jednorozměrné a dvourozměrné datové soubory, regresní analýza, časové řady*. 3. vyd. Brno: Akademické nakladatelství CERM, 2012. ISBN 978-80-7204-822-9.

KUBÍČKOVÁ, D. and I. JINDŘICHOVSKÁ. *Financial analysis and evaluation of firm performance*. Prague: C. H. Beck, 2015. ISBN 978-80-7400-538-1.

LARSEN, R. and J. MARX, L.Morris. *An Introduction to Mathematical Statistics and Its Applications*. Edition 5 .Pearson Education, p.768, 2011. ISBN 978-03-218-3146-0.

Leading wheat producers worldwide from 2016/2017 to 2022/2023. In: *statista.com*. [online], ©2023 [Accessed 1 May 2023]. Available at: <https://www.statista.com/statistics/237908/global-top-wheat-producing-countries/>

MÁČE, M. *Financial analysis of business and state organizations: practical examples and applications*. Prague: Grada Publishing, 2005. ISBN 8024715589.

MARTINOVIČOVÁ, D. *Introduction to business economics*. Prague: Grada Publishing, 2014. ISBN 9788024753164.

MRKVIČKA, J. and P. KOLÁŘ. *Finanční analýza*. 2.vyd. Praha: Wolters Kluwer, 2006. ISBN 978-80-7357-219-8.

NEUBAUER, J. and M. SEDLÁČEK, O. KŘÍŽ. *Introduction to Statistics*. Prague: Grada, 2012. ISBN 978-80-247- 5786-5.

REŽŇÁKOVÁ, M. *Řízení platební schopnosti podniku*. Vydání 1. Praha: Grada, 2010. Prosperita firmy. ISBN 978-80-247-3441-5.

ROSICKE, website of the company. In: *rosicke.cz* [online], © 2023 [Accessed 1 May 2023]. Available at: <https://rosicke.cz>

RŮČKOVÁ, P. *Finanční analýza: metody, ukazatele, využití v praxi*. Vydání 6. aktualizované. Praha: GRADA Publishing, a.s., 2019. ISBN 978-80-271- 2028-4.

SCHOLLEOVÁ, H. *Ekonomické a finanční řízení pro neekonomy*. 3 vydání. 2017. Praha: Grada Publishing. Expert (Grada). ISBN 978-80-271- 0413-0.

SEDLÁČEK, J. *Finanční analýza podniku*. Vydání 2. aktualizované. Brno: Computer Press, a.s., 2011. ISBN 978-80-251-3386-6.

TIBSHIRANI, R. and T. HASTIE, J.FRIEDMAN, J. H. Friedman . *The Elements of Statistical Learning: Data Mining, Inference, and Prediction*. Second edition Springer, p. 737, 2017.

Wheat Prices — 40 Year Historical Chart. In: *macrotrends.net* [online], © 2023 [Accessed 1 May 2023]. Available at: <https://www.macrotrends.net/2534/wheat-prices-historical-chart-data>

ZATKA, website of the company. In: *zatka.cz* [online], © 2023 [Accessed 1 May 2023]. Available at: <https://www.zatka.cz>

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**ANNEX 1: BALANCE SHEET (ASSETS AND LIABILITIES) IN CZK THOUSAND
2014–2022**

(Source: Commercial register: Europasta SE, annual reports and financial statements 2014–2022)

BALANCE SHEET	2014	2015	2016	2017	2018	2019	2020	2021	2022
TOTAL ASSETS	892 932	749 925	690 960	727 169	713 213	687 398	643 682	690 397	840 995
Fixed assets	489 790	447 349	406 395	395 820	364 175	342 827	321 527	314 843	326 366
Intangible fixed assets	458	830	1 093	11 481	9 842	8 425	6 423	4 761	4 997
Tangible fixed assets	489 332	446 519	405 302	384 339	354 333	334 402	315 104	310 082	321 369
Current assets	337 388	299 640	281 117	329 212	347 126	342 861	320 363	373 655	513 864
Material	66 391	85 815	79 954	85 534	93 068	89 157	66 648	103 372	110 043
Inventories	133 775	155 266	149 388	158 025	161 364	168 319	128 581	164 914	205 214
Receivables	185 898	134 094	123 741	149 753	193 907	150 411	142 798	181 137	301 892
Long-term receivables	45	45	45	5 704	8 660	2 067	367	23	23
Short-term receivables	185 853	134 049	123 696	144 049	185 247	148 344	142 431	181 114	301 869
Other assets	5 754	2 936	3 448	2 137	1 912	1 710	1 792	1 899	765
Cash	17 715	10 280	7 988	21 434	11 855	24 131	48 984	27 604	6 758
Cash on hand	143	203	242	159	149	194	258	179	262
Cash at bank	17 572	10 077	7 746	21 275	11 706	23 937	48 726	27 425	6 496
TOTAL LIABILITIES & EQUITY	892 932	749 925	690 960	727 169	713 213	687 398	643 682	690 397	840 995
Equity	99 924	108 000	104 430	124 074	127 999	128 747	138 905	155 996	254 262
Share capital	108 000	108 000	108 000	108 000	108 000	108 000	108 000	108 000	108 000
Retained earnings (+/-)	-31 472	-42 472	-53 974	-36 883	-16 531	-12 314	-6 138	4 020	21 112
Profit or loss for the current period (+/-)	-8 917	-11 502	18 901	20 644	4 217	6 176	10 158	17 901	98 265
Liabilities	732 791	663 387	586 343	602 863	584 941	558 380	504 499	533 055	583 605
Payables	394 347	351 380	586 343	602 863	584 941	558 380	504 499	533 055	583 605
Long-term payables	91 947	89 755	171 303	199 073	160 941	141 435	114 122	95 059	23 859
Short-term payables	302 400	261 625	415 040	403 790	424 000	416 945	390 377	437 996	559 746
Other payables	24 834	27 197	48 581	24 176	20 630	19 970	23 327	30 685	44 912
Other liabilities	217	199	187	232	273	271	278	1 346	3 128

ANNEX 2: PROFIT AND LOSS ACCOUNT IN CZK THOUSAND 2014–2022

(Source: Commercial register: Europasta SE, annual reports and financial statements 2014–2022)

PROFIT AND LOSS ACCOUNT	2014	2015	2016	2017	2018	2019	2020	2021	2022
Sales of products and services	1 187 404	1 100 179	1 061 464	1 035 926	1 029 402	1 102 498	1 253 773	1 288 362	1 967 470
Sales of goods	4 760	3 011	17 830	6 207	13 526	12 019	43 069	39 123	59 056
Sales of fixed assets	1 751	814	90	694	22 986	861	2 534	187	465
Sales of material	1 600	719	2 486	2 202	732	8 334	519	709	1 290
Operating profit or loss (+/-)	7 529	-2 596	34 375	28 463	16 428	13 775	25 267	25 046	137 566
Financial profit or loss (+/-)	-18 258	-11 098	-11 385	-2 475	-10 795	-5 972	-12 957	-4 162	-15 888
Profit or loss before tax (+/-)	-10 729	-13 694	22 990	25 988	5 633	7 803	12 310	20 884	121 678
Profit or loss net of tax (+/-) / Profit or loss for the current period (+/-)	-8 917	-11 502	18 091	20 644	4 217	6 176	10 158	17 091	98 265
Net turnover for the current period	0	1 120 094	1 088 476	1 061 642	1 073 921	1 134 490	1 313 338	1 341 216	2 045 681

ANNEX 3: TOTAL COSTS IN CZK THOUSAND 2014–2022

(Source: Commercial register: Europasta SE, annual reports and financial statements 2014–2022)

TOTAL COSTS	2014	2015	2016	2017	2018	2019	2020	2021	2022
Purchased consumables and services	1 020 536	958 838	868 877	843 938	958 838	937 868	1 041 630	958 838	958 838
Consumed material and energy	857 790	813 645	737 316	705 506	724 904	789 024	876 107	950 048	1 474 262
Services	162 746	145 193	131 561	138 432	141 754	148 844	165 523	154 572	202 328
Staff costs	101 701	101 669	108 779	116 669	118 793	122 482	130 874	127 203	151 728
Other operating expenses	25 013	3 562	8 709	7 639	6 765	15 102	6 478	5 579	6 768
Interest expenses and similar expenses	12 334	9 507	9 074	9 979	6 756	7 226	4 779	5 202	13 391
Other financial expenses	9 120	9 130	6 067	6 891	7 395	3 785	18 889	8 093	13 729