What asset structure generates the highest possible profit for a manufacturing enterprise?

Tomáš Krulický[1,*] and *Lucie* Nováková[1]

[1]Institute of Technology and Business in České Budějovice, School of Expertness and Valuation, Okruzni 517/10, 37001 Ceske Budejovice, Czech Republic

Abstract. The objective of the paper is to determine the most suitable operational redundant assets and asset structure for a manufacturing enterprise. They are determined by the financial analysis of ratios, vertical and horizontal analysis, and the calculation of Altman Z-score. The recommended sizes of activity ratios are: the turnover of total assets should be equal to the value of 1, the time of inventory turnover should be as short as possible, the turnover of inventories should be as large as possible, the time of debt collection should be the shortest possible, the due date of fulfilling obligations should be equal to 2 or higher. The ratios are compared with the sector and the position of enterprise is assessed. The limit of the research is the incapability to determine the best asset structure, but only the best possible one, on the basis of comparing with the sector that sets the bar in a specific field. Every enterprise aspiring to be competitive should meet the sector standards, at least.
Keywords: asset structure, financial analysis, activity ratio, profitability ratio, liquidity ratio, comparison with the sector

1 Introduction

Using all the asset structures available an enterprise gains a competitive advantage directly inside the business. It focuses on the nature of resources, the way of efficient use, flexibility of resources and its balance in the overall corporate [1].

The resources of assets must be defined and financially evaluated first. We follow the principles of correct asset accounting. It is important to avoid manipulating balance sheets, artificial increasing their liquidity and altering the structure of assets [2].

It is necessary to consider what asset structure prevails in the enterprise and what resources fund it. A high proportion of debt capital results in a negative profit, the loss of enterprise. The optimal share of debt capital maximising the return on assets oscillates within the range of 0 to 21% [3]. The asset structure is bound to the scope of business, therefore, I intend to deal with an industrial sector where current assets prevail. Industry 4.0 integrates smart and connected production systems that are pivotal in predicting and supporting production in real-time, leading to sustainable organizational performance. In manufacturing,

* Corresponding author: krulicky@mail.vstecb.cz

it may increase productivity, sustainability, and energy efficiency, while optimizing competitiveness [4].

Costs can be minimized by correct optimising the structure of volume of used assets that is operationally necessary for the scope of business [5]. The asset structure of enterprise also depends on technological complexity of production – it especially affects the proportion of tangible and intangible assets, investment assets, the economic situation of enterprise and its ability to innovate the assets. An asset structure can be found in the balance sheet, on the side of assets. Profitability is one of the most important ratios of company activities. The recommended methodology of complex profitability analysis can be successfully applied to the companies of various sizes and activities [6].

Every enterprise must flexibly respond to the optimisation of its asset structure to prevent the deficiency or surplus of asset structure. The aim of this work is to determine the optimal asset structure in a manufacturing enterprise.

The following research questions were formulated to meet the aim:

VO1: How to determine redundant assets?

VO2: What asset structure is the most appropriate for an enterprise?

2 Literature research

[7] develops a framework within which the losses of the effect on the future performance of a company are used for the development of three categories of capital and he suggests a measure for each category. He combines these categories with the qualities of assets into which the capital should be invested and which involve both the aspects of liquidity and the resources of this capital. The procedures are based on three following principles: 1) the allocation of capital based on accountancy; 2) the allocation of capital according to risk; 3) incentive capital allocation. Considering the sequence of stages in the model of asset optimization structure together with the methodological aspects of determining the efficient structure of assets – maximizing a market value and profit, [8] suggest an algorithm for creating an optimal structure of assets. It is developed on the basis of financial statement with the structures of assets by carrying out vertical analysis of balance sheet asset and placing the individual assets on the basis of weight provided it assumes more than 1% of total assets. However, if it takes into account the composition of inventory involving the stocks of raw materials and other materials, unfinished production, completed products and commodities, the methodology of panel data is used [9]. The economic results of a company are an important tool for many entities, e.g., for internal entities as well as for external entities. As the economic results of a company are often the only source of information that informs the company's partners about the managerial activities of their company, it is necessary to present these economic results using real numbers. However, companies prefer to achieve better results by applying the principles of creative accounting, which leads to improved economic values being shown to be achieved during an accounting period [10].

As shown by the analysis, there occurred a decrease of the proportion of inventory on the total assets and current assets. The realisation of BMI business value requires a concentrated effort of the asset owner so that the owner could determine and assess critical activities controlling the business value in AM. [11] adopted the approach of qualitative research based on the strategy of multiple case studies the aim of which was to identify the key trade processes supporting the business value of BMI in AM. The study identified the six systems of critical activity that increase the business value of BIM for the owner of assets, i.e., BIM strategy, contract management, lifecycle management, maintenance management, order management and value realization management. The balance of asset model is depicted by [12] as a structure of class where the effect is sorted according to various types of assets. He

proposes a theory of endogenous differences in the liquidity of assets based on an interaction between the differences in their risk and the differences in liquidity needs.

Not only do companies with a lower leverage effect have a lower probability of financial distress, but they also have a better position to obtain assets from the others in distress. [13] claim that using certain debt capital has an effect on the size of the profit of enterprise. The leverage effect can render companies reduce their debt as soon as the assets become more transferable. Therefore, it only has an effect to decrease debt. How do enterprises respond to asset structure in a crisis period? By a comparative analysis, [14] demonstrate that enterprises mainly survive during crises by relying upon the internal resources of financing. An external leverage effect is lowered as the costs of debt increase the risk of failure. In need, enterprises sell out insufficiently used or redundant tangible assets as they focus on their main competences and develop intangible assets. The management of stable development of business entities requires improving methodological approaches concerning the assessment of their efficiency. [15] assessed the efficiency with a comparative analysis with other economic entities regarding the efficiency of using the current number of resources. A classical approach to the analysis of efficiency by the means of the profitability of ratio do not always result in objective outcomes and require considering various economic and production factors. In practice, it is important to assess the efficiency of business entities by the means of a methodology involving two aspects. The first aspect enables to calculate certain indicators of relative efficiency characterising a specific enterprise. The second aspect is based on carrying out a comparative analysis with other economic entities concerning the efficiency of using current material, financial and human resources.

However, the enterprise value must also be analyzed on the basis of other key indicators, such as financial leverage, the Capital Asset Pricing Model (CAPM) method, or the net present and future value of the FCFE. This is especially important so that the results can be put into mutual relations and a sufficient representative value of the FCFE results can be achieved [16]. Value generators can be used to determine which asset structure is most profitable. They indicate the activities and capabilities that increase profitability, reduce risk and promote company growth. However, the main assumption is that the value of the company will be measured by the EVA Equity indicator [17].

[18] show, theoretically and with the help of real data, Bayesian efficient limit extends the efficient limit of sample; current estimator of the set of optimal portfolios that is known to be excessively optimistic. It also provides a back predictive distribution of optimal portfolio return that can be used for the construction of prediction interval. Why is financial analysis an important instrument for proving and controlling decisions on using assets? Since the turnover and return on assets substantially depend on the particularities of a sector and conditions for entrepreneurship, the means of financial analysis must adapt to specific situations, [1] claim. A methodological base is a systemic approach to dealing with the analytical management of assets. In the course of generalising the methodological principles of financial analysis addressing the efficiency of asset management, the techniques of abstract-logical methods are employed, i.e., analysis and synthesis, induction and deduction, analogy and comparison. The methods of average and relative values, the methods of modelling and factor analysis were used for all calculations; they were adopted for establishing a relation between the systems of financial ratios of asset efficiency. [19] critically consider the performance of individual sector on the basis of totally monitored indicators in comparison with a performance indicator (PI) and a key performance indicator (KPI). The paper contains a design of KPI system that would enable to assess the performance of industrial sectors including a correlation analysis of these indicators for long-term relations. Therefore, it is possible to assess the performance of individual industrial sectors with their help. These indicators are derived from total indicators that are monitored by the Ministry of Industry and Trade and the Czech Statistical Office [20] for rating development, manufacturing and industry. The methodology of a complex analysis recommended by [21] includes: 1) setting the aims of

analysis; 2) the selection of analytical resources and technical methods; 3) the calculation and assessment of profitability of sales (gross and net), profitability of assets (total assets, fixed and short-term assets), profitability of equity (share capital, equity and capital employed) 4) determination of factors influencing profitability; 5) use of information collected during the analysis for the purposes of internal and external users. [22] designed an indicator estimating the financial situation of an organisation; several publications directly regard Z as a standard for the risk of insolvency. Altman Z-score estimating the risk of insolvency fails to explain the historical return of assets.

The most suitable methods for fulfilling the aim of the work seem a financial analysis, assessing the ratios of assets and Altman Z-score.

3 Materials and methods

3. 1 Data

The source of data are financial statements of Izos, limited liability company, in manufacturing industry, for the years of 2016, 2017 and 2018. The data are to be analysed by the table system of Microsoft Excel. The fundamental source of data are the annual reports to be subsequently published at https://www.justice.cz/web/msp [online]. [quote 2022-04-10]. The financial statement includes a balance sheet, a profit and loss, cash flow and attachments. The following items of the balance sheet will be used: working capital, total assets, inventories, debts, short - term financial assets, current assets, equity, bonds and bills, current account, short - term liabilities, held profit, debt, short - term debt, quick assets. The profit and loss will provide the following items: sales of goods sold, costs of goods sold, performance, production consumption, personnel costs, depreciation, interest expense, HV for the accounting period, total revenues, total costs, earnings before interest and taxes, sales. The items will be compared with manufacturing sector, the data will be provided at: https://www.mpo.cz/ [online]. [quote 2022-04-13]. The financial analysis of manufacturing industry will be used for a precise comparison with Izos, limited liability company.

3. 2 Methods

The items for the years of 2016-2018 will be compared and analysed by financial, horizontal and vertical analysis. Financial analysis is an instrument for an objective assessment of enterprise; individual pieces of information, and their interaction, are assessed by the horizontal analysis of data in the course of time; the structure of an enterprise is assessed by vertical analysis of data. During analysing the assets of balance sheet vertical analysis provides the answers for questions, what percentage of total assets account for the individual asset groups (intangible assets, tangible assets, current assets, or accruals).

Aggregated items may be graduated if there is an interest in closer detail. We can determine what percentage of tangible assets are movable and immovable things, what percentage of current asset is its every item. What measures can be derived from vertical analysis? For example, to enhance the control of costs, to achieve increased profit for the following year or to prevent its decrease in comparison with the past, at least.

The individual items of assets in the balance sheet will be measured against total assets by vertical analysis. We will use it for calculating the share of individual items of assets in the total assets of enterprise in percentage. We will measure the difference of the previous year with the following year, in relative units, by horizontal analysis.

We will monitor the different values of an item in the period of t and **t+n** by the total growth of item value. The percentage change in the items of outputs should generally be

higher than in the items of inputs. Thanks to horizontal analysis we identify the items with the biggest relative change. On its basis, it is possible to determine the degree of reproduction and the use of enterprise assets.

Horizontal analysis is calculated as follows:

$$total\ size\ of\ change\ = financial\ ratio_{\ t+n} - financial\ ratio_{t}, \quad (1)$$

where t means the basic monitored period,
t+n immediately following period.

We will examine the items from the balance sheet: fixed assets and current assets.

Vertical analysis is calculated:

$$The\ percentage\ ratio\ of\ certain\ item\ = X\ /\ total\ assets\ *\ 100 \quad (2)$$

where X means a certain item from the balance sheet.

We will examine the items from the balance sheet: fixed assets and current assets.

Financial ratios enable to acquire a quick picture of financial characteristics of enterprise. We will express the relation of two items from financial statements by their ratio. We will examine the following ratios of financial analysis for our needs: profitability ratios, activity ratios and liquidity ratios.

Activity ratios

They include: the turnover of assets (AR), inventory turnover (OZ). Activity ratios provide information how effectively an enterprise can appreciate its assets.

We will examine the following items from the balance sheet: total assets, inventories, debts; items from profit and loss: sales.

The turnover of assets is calculated from the relation:

$$OA\ =\ T\ /\ A \quad (3)$$

where OA means the turnover of assets,
T means sales,
A assets.

It expresses how effectively an enterprise can dispose of its assets regardless the sources of financing. The higher values of this ratio express more effective disposing of assets.

Inventory turnover is calculated from the following relation:

$$OZ\ =\ T\ /\ Z \quad (4)$$

where OZ means inventory turnover,
T sales,
Z inventories.

It shows the extent to which an enterprise depends on its short-term assets. The higher the values the enterprise achieves, the faster the enterprise can monetize its current assets and is less dependent on it.

Profitability ratio

It includes: return on assets (ROA), return on equity (ROE), return on invested capital (ROI). Profitability ratios provide information regarding how effectively an enterprise can appreciate its assets with regard to equity or debt capital.

It will examine the following items from the balance sheet: total assets, equity, debt capital, costs for sold goods, items from profit and loss: HV for accounting period, sales.

The return on assets is calculated as follows:

$$ROA = EAT/A \tag{5}$$

where ROA means the profitability of assets,
EAT earnings,
A assets.

The calculation renders us find out how effectively the enterprise disposes of its total assets.

The return on equity is calculated as follows:

$$ROE = EAT/E \tag{6}$$

where ROE means the return on equity,
EAT earnings,
E equity.

The calculation informs about to what extent the enterprise can appreciate its assets with the use of its own resources.

Return on investments is calculated in the following relation:

$$ROI = EBIT/I \tag{7}$$

where ROI means return on investments,
EBIT earnings before interest and taxes,
I investments.

This ratio indicates the extent to which the enterprise can appreciate its invested capital.

Liquidity ratios

They include the following ratios: current ratio (BL), quick ratio (PL), cash position ratio (OL). Liquidity ratios will inform us about the extent to which the enterprise is able to fulfil its obligations from its short-term assets.

We will examine the following items from the balance sheet: inventories, short-term financial assets, current assets, short-term obligations.

Current ratio is calculated in the following relation:

$$BL = OA / KZ \tag{8}$$

where BL means current ratio,
OA current assets,
KZ short-term obligations.

It expresses the extent to which an enterprise is able to fulfil its short-term obligations from current assets.

Quick ratio is calculated in the following relation:

$$PO = (OA - Z) / KZ \quad (9)$$

where PO means quick ratio,
OA current assets,
Z inventories,
KZ short-term obligations.

The calculation is analogical to a current ratio calculation with the difference that inventories are deducted from current assets.

Cash position ratio is calculated in the following relation:

$$OL = FM / K \quad (10)$$

where OL means cash position ratio,
FM financial assets,
KZ short-term obligations.

The ratio provides information about the extent to which the company can fulfil its short-term obligations from its cash.

Further, we will use Altman Z-score, the ratio of Z factor should predict the bankruptcies of enterprises two years ahead, the further into the future we would like to predict, the lower the probability of bankruptcy. These models are very useful for an investor assessing the purchases of company shares or bonds. The models include important items such as assets, debts, profit, sales, obligations, etc. Table 1 shows that a financially stable enterprise is very likely to survive. The grey zone means that the probability to survive cannot be conclusively determined. The last result shows that an enterprise is immediately threatened by bankruptcy.

Altman Z-score

It is calculated as follows:

$$Z = 0{,}717 * X1 + 0{,}847 * X2 + 3{,}107 * X3 + 0{,}42 * X4 + 0{,}998 * X5 \quad (11)$$

where X1 is calculated as: net working capital / total assets,
X2 the profit of past years / total assts,
X3 EBIT / total assets,
X4 basic capital / total assts,
X5 sales / total assts,
EBIT it means earnings before interest and taxes here

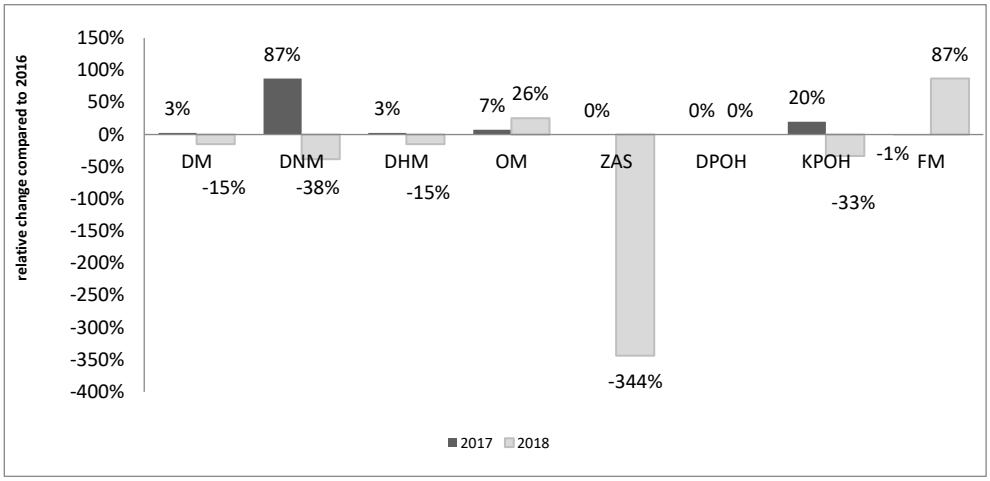
Table 1. The values of Altman X-score results.

Result	Assessment
> 2,99	financial stability
1,8 to 2,98	grey zone
> 1,7	bankrupting enterprise

Source: Authors.

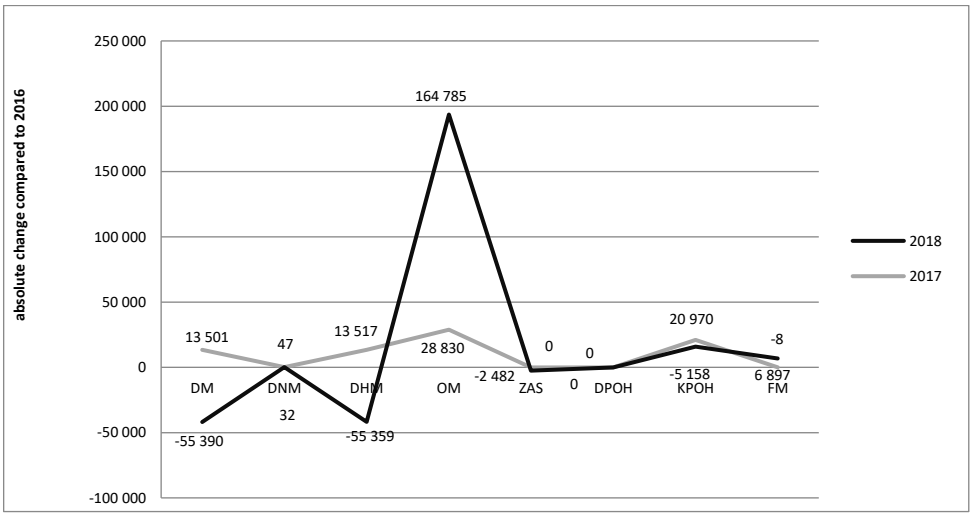
4 Results

In the horizontal analysis of assets – relative, the year-on-year change of assets in percentage against the year of 2016 was observed. The horizontal analysis of assets – relative, it is shown in graph No.1. In 2017, fixed assets (DM) grew by 3% against the year of 2016 and subsequently dropped by 15% in 2018. Long-term intangible assets (DHN) were supposed to grow by 87% in 2017, it could have meant buying better software for the company, a decrease occurred in 2018, up to -38%, which is an unstable fall. Fixed assets (DM) grew by 3% in 2017 and subsequently dropped by 15% in 2018. The only item that failed to drop under the value equal to the year of 2016 are current assets (OM), they grew by 7% and by 26% in 2018. Inventories (ZAS) show a deep and unstable decrease, the fall in 2018 was by incredible 344% and it was equal to 0% in 2017%. The long-term debts (DPOH) are equal to 0%. Shor-term debts (KPOH) grew by 20% in 2017 against 2016 and subsequently dropped by 33%. Financial assets (FM) grew to the value of 87% in 2017 against 2016 and decreased by 1% in 2018. Comparing assets in total with manufacturing industry, the enterprise is below the usual values in the sector on average by CZK 1-1.5 million.



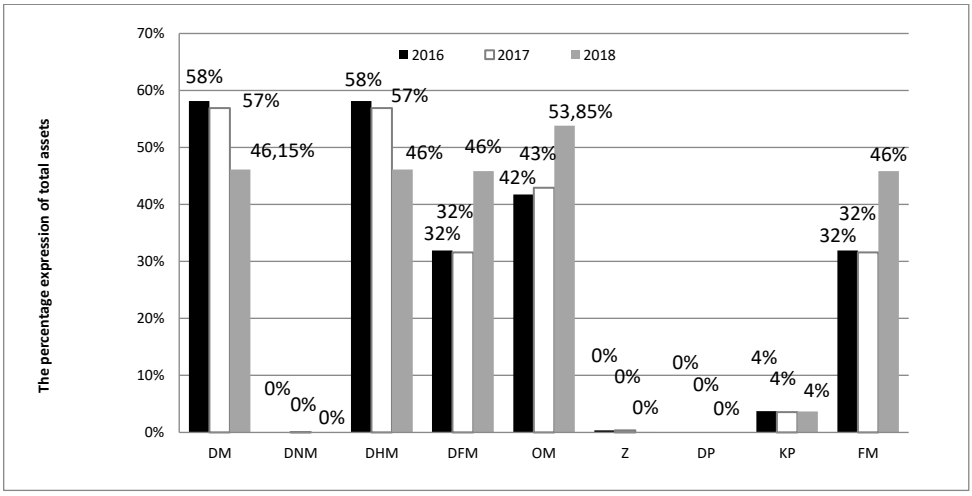
Graph 1. Horizontal analysis of assets – relative.
Source: Authors.

In the horizontal analysis of assets – absolute, we observe the growth or decrease of items in absolute units, in CZK thousands, against 2016. The horizontal analysis of assets is shown in graph No.2. Fixed assets (DM) decreased in 2017 and by CZK 55, 000, 000 in 2018. Long-term tangible assets (DNM) increased by CZK 47, 000, 000 in 2017 and by CZK 32, 000, 000 in 2018. Long-term tangible assets (DHM) grew by CZK 13, 517, 000 in 2017 and decreased by CZK 55, 359, 000 in 2018. Current assets (OM) increased by CZK 28, 000, 000 in 2017 and it also grew by CZK 164, 000, 000 in 2018. Inventories (ZAS) show 0 difference in 2017 against 2016, they decreased by CZK 2, 482. 000 in 2018. Long-term debts (DPOH) fail to demonstrate any difference in 2017 and 2018 against 2016. Short-term debts (KPOH) grew by CZK 20, 970, 000 in 2017 and decreased by CZK 5, 158, 000 in 2018. Financial assets (FM) fell by CZK 8, 000 in 2017 and grew by CZK 6, 897, 000 in 2018. Total assets increased by CZK 42, 323, 000 in 2017 and grew by CZK 116, 292, 000 in 2018.



Graph 2. The horizontal analysis of assets – absolute.
Source: Authors.

The percentual expression of items from assets in total for individual years was calculated by vertical analysis. Vertical analysis is shown in graph No.3. Fixed assets (DM) accounted for 58% of total assets in 2016, 57% in 2017 and 46.15% in 2018. Long-term tangible assets (DHM) accounted for 58% of total assets in 2016, 57% in 2017, 46% in 2018. Long-term financial assets (DFM) accounted for 32% of total assets in 2016, 32% in 2017, and 46% in 2018. Current assets (OM) accounted for 42% of total assets in 2016, 43% in 2017 and 53.58% in 2018. The items of long-term intangible assets (DNM), inventories (ZAS) and long-term debts (DP) show the zero expression of total assets. Financial assets accounted for 32% of total assets in 2016, 32% in 2017 and 46% in 2018.



Graph 3. The vertical analysis of assets.
Source: Authors.

The analysis of ratios - assets

Activity ratios generally assess the way how the asset items of enterprise can transform into sales.

In 2016, the turnover of inventories changed into sales 180 x per annum, total assets turned into sales 0.66 x per annum and one item transformed into collection in 52 days. In 2017, the turnover of inventories changed into sales 208 x per annum, total assets turned into sales 0.71 x per annum and one item turned into collection in 56 days. In 2018, the turnover of inventories transformed into sales 986 x per annum, total assets turned into sales 0.71 per annum and 1 item changed into collection in 39 days.

The value of asset turnover should be at level 1 at least. The higher the value, the better the company uses its resources. If an enterprise has a law value of this ratio, it means that its asset structure is disproportional and is not used effectively.

In our case, the turnover of assets was 0.66 in 2016, 0.72 in 2017, 0.71 in 2018 and it was therefore lower than the time of inventory turnover, which was 2.00 in 2016, 1.73 in 2017 and 0.37 in 2018. It means that the enterprise is not able to efficiently dispose of assets and cannot efficiently use them and turn them into profit. The turnover of inventories is excellent in the enterprise. However, the time of debt collection is rather poor. The due date of fulfilling obligations is acceptable.

In comparison with manufacturing sector, the enterprise had a lower turnover of total assets, specifically, by 0.71 in 2016, 0.61 in 2017 and by 0.54 in 2018. The time of inventory turnover was higher in comparison with the sector, in the difference of 1.97 in 2016, 1.71 in 2017 and 0.34 in 2018. The time of debt collection was very high in the difference against the sector, by 50 days in 2016, by 55 days in 2017 and by 39 days in 2018.

The turnover of inventories is higher than in the sector, which is positive for the enterprise, it was higher in the difference of 90 days in 2016, 116 days in 2017 and 907 days in 2018. The due date of fulfilling obligations is also higher than in the sector, it was in the difference of 20.53 in 2016, 12.66 in 2017 and 18.35 in 2018.

We assess the enterprise to be worse off than manufacturing sector, in terms of the turnover of total assets, the time of inventory turnover, the due date of fulfilling obligations. In contrast, it is better off than the sector in terms of the turnover of inventories, the due date of fulfilling obligations. The enterprise has redundant assets located in current assets.

The analysis of ratios - profitability

The profitability of capital was at 5.23% in 2016 and subsequently rose to 8.23% in 2017 and to 9.17% in 2018. The profitability of total assets was 4.35% in 2016 and subsequently it rose to 6.6% in 2017 and to 7.48% in 2018. The profitability of equity was 5.02% in 2016, 7.45% in 2017 and 8.29% in 2018. The profitability of sales was 6.63% in 2016 and 9.22% and 10.46% in the following years. The last ratio is profit margin, which was 6.63% in 2016, 9.22% in 2017 and 10.46% in 2018.

In comparison to manufacturing sector the profitability of capital is overall lower than the value in the sector, specifically, by 8.96% in 2016, by 6.52% in 2017 and by 3.83% in 2018. The ROA of the enterprise requires lower figures than the sector, by 4% on average. The profitability of equity was lower than the sector by 3.02% in 2016, by 2.08% in 2017 and by 3.08% in 2018. The profitability of sales was below the sector level by 1.22% in 2016, but it showed higher values than the sector in the following years, specifically by 1.59% in 2017 and by 3.98% in 2018. The analysis of profitability renders us conclude that the enterprise is slightly below the level of its sector.

The analysis of ratios - liquidity

Current ratio accounts for 11.14 in 2016, 16.90 in 2017 and 16.64 in 2018.

Quick ratio is higher that it should be in enterprises, it is within the range of 1.2-1.6, the value was 11.04 in 2016, 16.76 in 2018 and 16.62 in 2018. Cash position ratio of the enterprise is right and corresponds to the values that should be, it was 0.03 in 2016, 0.04 in 2017 and 0.21 in 2018.

In comparison with the manufacturing sector, current ratio is very high, the difference was: by 9.46 in 2016, by 13.24 in 2017 and by 12.64 in 2018.

Quick ratio is also higher in comparison with the sector, it was by 10.02 in 2016, by 13.84 in 2017 and by 13.13 in 2018.

The recommendation is to decrease debts that are too big and fail to gain profit.

Altman Z-score

Altman Z-score appears in all three monitored years in the grey zone. The grey zone means that the probability of survival cannot be conclusively determined. The enterprise certainly has room for improvement.

In 2016, the enterprise shows the value of 1.58, which is a grey zone, in 2017, the value is 2.34, which is a grey zone as well, in 2018, the value is 2.44 and it is very close to being financially stable, the stability begins at the value of 2.99, however, the enterprise remains in the grey zone according to the figures in 2018. The recommendation is to decrease the volume of debts and to increase the volume of obligations.

Table 2. Comparison of ratio results.

Ratio	Enterprise			Sector			In a better position is the:
	2016	2017	2018	2016	2017	2018	sector/enterprise
The turnover of total assets	0,66	0,72	0,71	1,37	1,333	1,25	sector
The time of inventory turnover	2,00	1,73	0,37	0,03	0,03	0,02	sector
The turnover of inventories	180,14	207,73	985,85	90,00	92,00	79,00	enterprise
The time of debt collection	51,88	56,36	39,46	2,00	1,00	1,00	sector
The due data of obligations	20,54	12,67	18,36	0,01	0,01	0,01	enterprise
The profitability of capital	5,23%	8,23%	9,17%	14,19%	14,75%	13,00%	sector
The profitability of total assets	4,35%	6,66%	7,48%	8,21%	10,86%	11,48%	sector
The profitability of equity	5,02%	7,45%	8,29%	8,04%	9,53%	11,36%	sector
The profitability of sales	6,63%	9,22%	10,46%	7,85%	7,63%	6,48%	enterprise
Current ratio	11,14	16,90	14,64	1,68	3,66	2,00	enterprise
Quick ration	11,04	16,76	14,62	1,02	2,92	1,49	enterprise
Cash position ratio	0,03	0,04	0,21	0,24	0,75	0,54	enterprise

Source: Authors.

Table 2 shows the results of individual ratios. Even at first sight, it is clear that the company is not in a bad position in comparison with the results of the manufacturing sector. As for the turnover of assets, it had better results than the sector in the years of 2016, 2017 and 2018, therefore the enterprise shows worse results. At the time of inventory turnover, in the examined years, the sector achieved better results than the enterprise whose results were worse. As for the turnover of inventories, the enterprise is in a better position against the sector, the enterprise can turn the turnover of inventories into sales more times per annum than the sector. At the time of debt collection, the sector is better than the enterprise, the enterprise shows vary high values and is worse off than the sector. At the due date of obligations, the enterprise is better off, its figures are higher against the sector. In terms of

the profitability of capital, the profitability of total assets and the profitability of equity, the sector is better off against the enterprise, however, the enterprise is below the level of the sector on average by 4%. Regarding the profitability of sales, the sector shows better values by mere 1.22% in the monitored year (2016), in further monitored years (2017, 2018) the enterprise is better. Concerning current ratio, the enterprise is better off against the sector. In quick ratio, the enterprise shows better values against the sector as well, the sector has very low values and is therefore worse off than the enterprise. In terms of cash position ratio, the enterprise is also better off than the sector.

5 Discussion of Results

On the basis of the obtained results, it was possible to answer the formulated research questions as follows:

VO1: How to determine redundant assets?

According to the ratios, as a unit, it may be concluded that the enterprise, in total, has quite positive results and an average asset structure. It failed to have quite optimal composition in every ratio and failed to always achieve as positive results as were in the sector, but it is a frequent phenomenon in practice. It may be found something that can be improved in every enterprise; it even applies to the best companies in the market. We arrived at the conclusion that the enterprise proves to have very good liquidity against manufacturing industry, but it should concentrate more on profitability and the turnovers of total assets and inventories. With the help of activity ratio, which was higher than in the sector, it can be concluded that the enterprise possesses redundant assets, specifically, the high volume of debts. [8] employed the method of asset efficiency analysis, in most cases they contained the systems of ratios, including the ratios of return on assets, the turnover of assets and the time of asset turnover. The method requires such interpretation of calculation results that takes into account the specifics of the sector where the enterprise does business. We do agree with this methodology, the results would otherwise be without an objective perspective and comparison. [21] used horizontal and vertical analysis of fixed assets. With the presence of further permanent factors, the part of assets increases, it may be concluded that the production capacity of enterprise expands. However, it is necessary remark that the increase in the asset part is not always an objective indicator of expanded production capacity. The change of tangible investment assets is often influenced by reconstruction, the division or merger of enterprise, changes in organisational structure and the system of management, the improvement of production processes and the forms of work organisation, the recovery of depreciated and obsolete assets, the level of specialisation in production and cooperation, the change of geographical location of business. Based on the analysis of Izos, limited liability company, we are unable to determine, whether the increase of asset structure was influenced by the innovation of asset structure or the increase of production, [21]. Tourism spending as well as innovations are characterized by great economic value, which emphasizes the need for their research from a macroeconomic perspective [23].

The influence of net profit and changed assets on the profitability of long-term tangible assets is crucially significant. There is a direct link between material fix and the profitability of assets and net profit. As the amount of net profit increases or decreases, the net profitability of assets correspondingly increases or decreases. Whereas, the relation between profitability and tangible investment assets is an inverse value. Decreasing the value of assets results in increasing the net profitability of tangible investment assets and vice versa – increasing the value of assets results in decreasing profitability. We arrived at this conclusion as well, there are direct links to property structure and the amount of net profit. Right at this point we

observe the problem of Izos limited liability company, which is the size of debts that are tied to money the company can use somewhere else.

Redundant assets determined using the activity ratio appears to bet the volume of receivables that needs to be reduced.

VO2: What asset structure is the most appropriate for an enterprise?

It can be concluded from the results that the enterprise has quite good asset structure; however, it should change the volume of debts and increase the volume of inventories. [9] determined the financial performance of company by a number of various factors. It includes the policy of inventory management, which is designed in such a way that it determines the proportionate level and structure of inventories both in logistic and financial conditions. In economic practice, however, the strategy of inventory management significantly varies, e.g., Just in Time, Lean Management, Vendor Managed Inventory. It also differs in entrepreneurship sector, the size of company and industry. Studies based on the example of Polish food industry sectors showed there were statistically significant casual links concerning performance between inventory and financial days. In fact, the increase of these inventory cycles was significantly determining for ROA, rather than increasing days of other inventories. Briefly, this study found out that the management rationalization of inventories may be a significant power force for improving the financial performance of enterprises, therefore, it can contribute to creating values for owners. The size of inventories negatively influences the ratios of activity against manufacturing sector. We recommend Izos, limited liability company to increase the volume of inventories.

The enterprise has quite good asset structure, it was found out by using the ratios of financial analysis that the enterprise should adjust its current assets, specifically, to decrease the volume of debts and to increase the volume of inventories.

Within a case study, we recommend this adjustment of asset structure for Izos, limited liability company:

Fixed assets appear to be in an optimal proportion to the asset structure.

Current assets should be adjusted to generate the maximum possible profit, specifically, in terms of inventories and debts.

6 Conclusion

The objective of the paper was to determine redundant assets and the most appropriate asset structure for the enterprise. The objective was achieved by using the horizontal and vertical analysis of assets, the ratios of financial analysis and Altman Z-score. The results of the ratios of financial analysis were subsequently compared with manufacturing sector and it was searched where Izos, limited liability company would deviate from mean values and where the values would be in accordance. By vertical and horizontal analysis, it was discovered what asset structure the enterprise disposes of. The part of the data was used in calculating the ratios of financial analysis, which was essential for answering the research questions. Altman Z-score only proved whether the enterprise shows a future prediction for survival.

The effect of the results of activity ratio, profitability ratio and liquidity ratio enabled us to compare the results of manufacturing sector and determine the strengths and weaknesses of the enterprise. Due to this comparison, the deficiencies of the enterprise against the sector were determined. The recommended sizes of ratios are as follows: the turnover of total assets should equal 1, the time of inventory turnover should be the shortest possible, the turnover of inventories should be the highest possible, the time of debt collection should be the shortest possible, the due date of obligations should at least equal 2 or be higher.

The research limitation lies in the impossibility to determine the absolutely best asset structure but only the best possible structure on the basis on the comparison with the sector that sets the bar for the enterprises operating in the given sector.

Enterprises are thus recommended to monitor the activity ratios that directly influence the profitability of equity and its appreciation.

However, the right optimisation of asset structure can be even achieved by the minimisation of costs [5]. Creating the measures to reduce production costs is the main part of the cost management system in the enterprise; searching for reliable suppliers, improving products, better work organisation and sales, increasing work efficiency, maximising the involvement of additional income and accessible assets (renting sites not currently used by the enterprise results in obtaining additional income and, therefore, reducing the costs of maintenance of these premises or equipment), permanent controlling the costs of the enterprise, increasing the efficiency of internal cost management based on due time and high quality analysis; they are used for optimising operational costs in manufacturing enterprises.

References

1. T. Kovalchuk, A. Verhun, Improvement of the method of analysis of asset management efficiency. *Baltic Journal of Economic Studies,* **5**(5), 61-66 (2020)

2. M. M. Shygun, N. A. Ostapiuk, O. V. Zayachkivska, N. V. Goylo, The influence of the classification of non-current assets as holding for sales on the liquidity of the company's balance sheet. *Entrepreneurship and Sustainability Issues,* **8**(1), 430-441 (2020)

3. V. Spitsin, D. Vukovic, S. Anokhin, L. Spitsina, Company performance and optimal capital structure: evidence of transition economy (Russia). *Journal of Economic Studies*, **48**(2), 313-332 (2020)

4. K. Valaskova, M. Nagy, S. Zabojnik, G. Lazaroiu, Industry 4.0 Wireless Networks and Cyber-Physical Smart Manufacturing Systems as Accelerators of Value-Added Growth in Slovak Exports. *Mathematics*, **10**(14), 2452 (2022)

5. N. Bondarchuk, L. Vasiljeva, Impact of operating costs on economic phenomena and the possibility of their optimization at processors. *Baltic Journal of Economic Studies*, **4**(2), 40-46 (2018)

6. D. Tamulevičienė, Methodology of complex analysis of companies' profitability. *Entrepreneurship and Sustainability Issues*, **4**(1), 53-63 (2016)

7. A. Krause, Risk, capital requirements, and the asset structure of companies. *Managerial Finance,* **2**(9), 774-785 (2006)

8. N. O. Kovalchuk, M. G. Marych, L. V. Popova, A. O. Viknianska, Modeling of the optimal structure of meat processing enterprises. *Financial and credit activity: problems of theory and practice,* **4**(31), 270-278 (2019)

9. Z. Gołaś, Effect of inventory management on profitability: evidence from the Polish food industry. *Agricultural Economics*, **66**(5), 234-242 (2020)

10. R. Blazek, P. Durana, K. Valaskova, Creative Accounting as an Apparatus for Reporting Profits in Agribusiness. *Journal of Risk and Financial Management,* **13**(11), 261 (2020)

11. M. Munir, A. Kiviniemi, S. W. Jones, S. Finnegan, The business value of BIM for asset owners: a cross-case analysis. *Journal of Facilities Management,* **18**(5), 469-486 (2020)

12. N. L. Jacquet, Asset classes. *Journal of Political Economy*, 1-12 (2018)

13. A. E. Bernardo, A. Fabisiak, I. Welch, Asset redeployability, liquidation value, and endogenous capital structure heterogeneity. *Journal of Financial and Quantitative Analysis,* **55**(5), 1619-1656 (2020)

14. T. H. Van Hoang, C. Gurău, A. Lahiani, T. L. Seran, Do crises impact capital structure? A study of French micro-enterprises. *Small Business Economics,* **50**(1), 181-199 (2018)

15. O. Pakhnenko, O. Liuta, N. Pihul, Methodological approaches to assessment of the efficiency of business entities activity. *Business and Economic Horizons,* **14**(1), 143-151 (2018)

16. V. Jezkova, Z. Rowland, V. Machova, J. Hejda, The Intrinsic Value of an Enterprise Determined by Means of the FCFE Tool. *Sustainability,* **12**(21), 8868 (2020)

17. M. Vochozka, V. Machova, Enterprise Value Generators in the Building Industry. *Innovative Economic Symposium 2017 (IES2017): Strategic Partnership in International Trade*, **39** (2017)

18. D. Bauder, T. Bodnar, N. Parolya, W. Schmid, Bayesian mean–variance analysis: optimal portfolio selection under parameter uncertainty. *Quantitative Finance*, **21**(2), 221-242 (2021)

19. M. Hedvicakova, M., Kral, Benefits of KPIs for industry sector evaluation: The case study from the Czech Republic. *E+M Ekonomie a Management,* **22**(2), 97-113 (2019)

20. Ministry of industry and trade. *Financial analysis of the corporate sector for the year 2016* [online], Available at: https://www.mpo.cz/assets/cz/rozcestnik/analyticke-materialy-a-statistiky/analyticke-materialy/2017/5/FA4Q16.pdf (2017)

21. D. Tamulevičienė, J. Mackevičius, Methodology of complex analysis of tangible fixed assets. *Entrepreneurship and Sustainability Issues,* **7**(2), 1341-1352 (2019)

22. E. R. Lizarzaburu Bolaños, K. Burneo, L. Berggrun, Risk of insolvency and return of shares: empirical analysis of Altman's Z-Score in the Peruvian mining sector between 2008-2018. *Revista Universidad y Empresa*, **23**(40) (2021)

23. B. Gavurova, J. Belas, K. Valaskova, M. Rigelsky, V. Ivankova, Relations Between Infrastructure Innovations and Tourism Spending in Developed Countries: A Macroeconomic Perspective. *Technological and Economic Development of Economy,* **27**(5), 1072-1094 (2021)