

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics



Bachelor Thesis

Economic Analysis of Chosen Machine Building Enterprise

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

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Business Administration

Thesis title

Economic Analysis of Chosen Machine Building Enterprise

Objectives of thesis

The main thesis objective is to examine the current economic and financial situation of the Ukrainian machine building enterprise Magma. The thesis aims to evaluate enterprise's financial performance, market position, competitiveness, and factors affecting development trends by using different economic analysis techniques. Concluding, offer a development strategy aimed at expansion of new markets.

Methodology

The thesis is divided into two main parts, the theoretical and practical sections. In the theoretical part, the induction and extraction of text have used, providing the general information about economic analysis itself and ways of its implementation to the medium size business. Also, using the descriptive method, the introduction about the enterprise's history and activities is given. The theoretical section serves as a preparatory stage for the following practical part.

Through the financial, production, social data collection the PEST analysis of the internal and external environment has processed. Then the financial report's data throughout past years applied to the time series analysis to make a future prediction. And finally using a SWOT analysis the recommendations about future ways of development are proposed.

The proposed extent of the thesis

40 – 60 pages

Keywords

Development, Machine Building Industry, Strategy, Enterprise, PEST Analysis, SWOT Analysis

Recommended information sources

- Dmytrenko L. Ukrainian machine building industry in conditions of world financial crisis. Position and perspectives. Kyiv National Taras Shevchenko University, VKNU 2010
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- Vojtlovsky N. Kalinina A. Complex economic analysis of the enterprise. Saint-Petersburg: Piter. 2011
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Declaration

I declare that I have worked on my bachelor thesis titled "Economic analysis of chosen machine building enterprise" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 15.03.2019

Acknowledgement

I would like to thank all PEF employees for their professionalism and kindness throughout the whole period of my study.

Economic analysis of chosen machine building enterprise

Summary

The bachelor thesis is dedicated to the economic analysis of Ukrainian machine-building enterprise Magma during the 2013-2017 time period. The thesis is divided into theoretical and practical implementation parts.

Theoretical part consists description of the Ukrainian economy and machine-building industry in particular.

The practical part is dedicated to Magma machine-building enterprise and starts with an overview of its history, services and products. Then it continues with the implementation of both economic and financial analyses tools in order to evaluate the company`s economic performance. Ratio, SWOT, and PEST analyses followed by Altman Z-score model are performed with interpreted results.

Finally, the recommendations regarding possible performance improvements are given.

Keywords: economic analysis, financial analysis, SWOT, PEST, machine-building industry, ratio analysis

Ekonomická analýza vybraného strojírenského podniku

Souhrn

Bakalářská práce se zabývá ekonomickou analýzou ukrajinského strojírenského podniku Magma v období 2013-2017. Práce je složena z teoretické a praktické části.

Teoretická část obsahuje popis ukrajinské ekonomiky a zejména strojírenského průmyslu.

Praktická část se zaměřuje na strojírenský podnik Magma a začíná přehledem jeho historie, služeb a produktů. Dále pokračuje implementací nástrojů ekonomické i finanční analýzy za účelem vyhodnocení ekonomické výkonnosti podniku. Poměrové, SWOT a PEST analýzy následované Altmanovým Z-score modelem jsou prováděny s interpretovanými výsledky.

Na závěr jsou uvedena doporučení týkající se možných zlepšení výkonnosti.

Klíčová slova: ekonomická analýza, finanční analýza, SWOT, PEST, strojírenský průmysl, poměrová analýza

TABLE OF CONTENTS

1	Table of figures	10
2	Introduction.....	11
3	Objectives	12
4	Methodology.....	13
4.1	Financial analysis	13
4.2	Sources of information	14
4.3	Main financial statements.....	14
4.3.1	Balance Sheet.....	14
4.3.2	Income Statement.....	15
4.3.3	Statement of Cash Flows	15
4.3.4	Retained Earnings (Statement of shareholders equity)	15
4.4	FINANCIAL ANALYSIS TECHNIQUES.....	17
4.4.1	Ratio analysis.....	17
4.5	Altman z-score Bankruptcy model.....	19
4.6	SWOT analysis	20
4.7	PEST Analysis	20
5	Theoretical part	21
5.1	Ukrainian economic situation	21
5.2	Economic consequences of war with Russia	25
5.3	Exports affected by the war in the east and annexation of Crimea.....	27
5.4	Machine building in Ukraine	29
5.4.1	Ukrainian hard machinery building	32
6	Practical part	34
	Machine building enterprise Magma	34
6.1.1	Production structure and services	36
6.1.2	Products	37
6.2	Economic Analysis.....	38
6.3	Analysis of financial ratios	39
6.3.1	Activity ratios	39
6.3.2	Liquidity and solvency ratios.....	43
6.3.3	Profitability ratios	45

6.4	Bankruptcy model	49
6.5	SWOT and PEST analyses	50
7	Conclusion and recommendations	53
8	Bibliography	54
9	Internet resources	55
11	Appendix	56

1 TABLE OF FIGURES

Figure 1: Relation between nominal and real GDPs	22
Figure 2: Real GDP growth	23
Figure 3: GDP per capita	24
Figure 4: Ukraine government debt to GDP	25
Figure 5: Devaluation of hryvnia	26
Figure 6: Decrease in exports after the start of the war	27
Figure 7: Distribution of exports per destination 2012-2017	28
Figure 8: GDP value added per sector 1992-2017	29
Figure 9: Machine building subsectors output, 2012	30
Figure 10: Export of hard machinery building products, 2013-2017.....	32
Figure 11: Worldwide Steel prices 2002-2019, \$ / metric tonne	33
Figure 12: Situation in the east of Ukraine 2017	34
Figure 13: Activity ratios	42
Figure 14: Liquidity and solvency ratios	45
Figure 15: Profitability ratios.....	48
Figure 16: SWOT analysis.....	50
Figure 17: PEST analysis	51

2 INTRODUCTION

In a modern fast-changing world the speed of the processes happening on both financial and economic areas is truly impressive. Every enterprise from small to huge seeks to improve its performance in order to stay successful among competitors within the range.

To feel the ground of the current company`s market position management uses economic analysis as one of the most effective sources of managerial decisions and source of further strategy. This is indeed the tool powerful enough to analyze all the areas of the performance, detect strengths and weaknesses, indicate inefficient use of resources, compose trend to predict future vector of development.

One of the most effective tools of economic analysis is a financial analysis which focuses on data obtained from the company`s financial statements. This technique helps to examine the past and current performance and financial position of a company in order to form expectations about its future performance and financial position.

From financial analysis managers, analysts, investors, competitors, brokers, regulators can have a deeper understanding of a company`s financial health and compare competitive environment in order to come up with a decision or recommendation

In this thesis tools of economic analyses are used to examine Ukrainian machine building enterprise Magma which is located right next to the war line in the east of Ukraine. Evaluating time period is 2013-2017 that allows comparing pre-war situation and performance after the start of the armed conflict with Russia. The analysis is done based on the available data sources obtained during the author`s internship in the company`s economic department.

3 OBJECTIVES

The aim of this thesis is to analyze, how much the war with Russia affected the Ukrainian economy and machine building industry on the example of Magma enterprise. Both Ukrstat and Magma`s databases made it possible to observe changes and give quantitative answers to what happened and how the situation is developing since then.

As for Ukrainian, raised in the east of the country, it was important for the author to select the topic touching the edgy social issue of Donbass occupation and Russian military aggression.

The paper is divided into two main sections, theoretical and practical parts. Theoretical part starts with the description of Ukrainian economy since the Soviet Union fall till the current times with the reasons for its` poor condition. Then the economic consequences of the war with Russia and its influence on Ukrainian exports are explained. Finalizing the section follows the state of Ukrainian machine building industry and its subsector of hard machine building. The main methods of this part are description and extraction.

Practical part starts with the review of the chosen enterprise`s history, services and product range. Then follows the implementation of the economic analysis techniques, mentioned in the theoretical part. Analysis of financial ratios is followed by bankruptcy Altman Z-score model both implemented and explained. Then, SWOT and PEST analyses are performed. General methods for the practical part are analytical, deductive, comparative.

In the end, the conclusion and recommendation for further activities are given.

4 METHODOLOGY

4.1 FINANCIAL ANALYSIS

Each business and enterprise are seeking for a stable market position, financial development and successful growth. To know how to make decision making in business, investment, or financing operations and achieve goals there are plenty of analytical techniques to provide quantitative answers.

Before selecting the appropriate tools from this wide range one of the most important steps in understanding the problem or issue that must be solved and asking appropriate questions to identify goals. For example, how strong is the company's financial position? How profitable is the company? Did earnings meet analyst forecasts? Does a company have the resources to succeed and grow? Does it have resources to invest in new projects? (Subramanayam, 2014)

One of the powerful instruments to make efficient business decisions definitely is a financial analysis which helps to frame quantitative results in a managerial context through data manipulation (Helfert, 2001)

Financial analysis is the set of analytical processes that examine a company's performance in the context of its industry and economic environment in order to come up with a decision or recommendation. Its role is to use financial reports prepared by companies, combined with other information, to evaluate the past, current, and potential performance and financial position of a company for the purpose of making investment, credit, and other economic decisions. (Robinson, Henry, Pirie, Broihahn, 2015)

Fundamental financial analysis begins with the data from a company's financial reports. These reports include audited financial statements, additional disclosures required by regulatory authorities, and any commentary by management. Basic financial statement analysis provides a foundation that enables the analyst to better understand information gathered from research beyond the financial reports. The role of financial reporting by companies is to provide information about a company's performance, financial position, and changes in financial position that is useful to a wide range of users in making economic decisions. (Robinson, Henry, Pirie, Broihahn, 2015)

4.2 SOURCES OF INFORMATION

A primary source of data is a company's annual report, including the financial statements and notes, and management commentary (operating and financial review or management's discussion and analysis) However, financial statements itself do not always provide all the information useful for analysis nor do they forecast future results. Thus, the financial analyst must be able to supplement the information found in a company's financial reports with other information, including information on the economy, industry, comparable companies, and the company itself to make projections and reach valid conclusions. (Robinson, Henry, Pirie, Broihahn, 2015)

4.3 MAIN FINANCIAL STATEMENTS

4.3.1 BALANCE SHEET

The balance sheet presents a company's current financial position by disclosing the resources the company controls (assets) and its obligations to lenders and other creditors (liabilities) at a specific point in time. (Robinson, Henry, Pirie, Broihahn, 2015)

The relationship between the three parts of the balance sheet (assets, liabilities, and owners' equity) can be expressed in the following equation form:

$$\text{Assets} = \text{Liabilities} + \text{Owners' equity} \quad (3.1)$$

The left-hand side of this equation represents resources controlled by a company or assets. These are investments that are supposed to generate future earnings through operating activities. The right-hand side of this equation relates to funding sources. Liabilities are funding from creditors and stand for claims of creditors on assets (obligations of a company). Equity is the total of funding invested or contributed by owners (contributed capital) and accumulated earnings in excess of distributions to owners (retained earnings) since the inception of the company. (Subramanyam, 2014).

4.3.2 INCOME STATEMENT

The income statement provides information on the financial results of a company's business activities between balance sheet dates. The income statement connects how much revenue the company accumulated during a period and what costs it generated in connection with gaining that revenue. (Robinson, Henry, Pirie, Broihahn, 2015)

4.3.3 STATEMENT OF CASH FLOWS

The third principal financial statement is the statement of cash flows. Wahlen, Baginski and Bradshaw state that: "the purpose of the statement of cash flows is to inform financial statement users about the sources and uses of cash, partitioned into its three business activities: operating, investing, and financing. Cash flows permit each of these activities to continue functioning smoothly and effectively. The statement provides useful information to complement the income statement, demonstrating how cash flows differ from accrual-based income. As typically prepared, the statement begins with net income, and effectively "undoes" the accrual accounting procedures to recapture the underlying cash flows. The statement of cash flows also can be helpful in assessing a firm's past ability to generate free cash flows and for predicting future free cash flows." (Wahlen, Baginski, Bradshaw, 2014)

4.3.4 RETAINED EARNINGS (STATEMENT OF SHAREHOLDERS EQUITY)

The retained earnings statement reports the changes in the retained earnings for a selected time period. (commonly 3 years) This statement is useful in identifying reasons for changes in equity holders' claims on the assets of a company. It is prepared after the income statement because the net income or net loss for the period must be reported in this statement. Similarly, it is prepared before the balance sheet, since the amount of retained earnings at the end of the period must be reported on the balance sheet. Because of this, the retained earnings statement is often viewed as the connecting link between the income statement and balance sheet. (Warren, Reeve, Duhac, 2013)

TABLE 1: FINANCIAL ANALYSIS PROCESS

Phase	Sources of information	Output
<p>1. Identifying the purpose and context of the analysis</p>	<ul style="list-style-type: none"> • Evaluating equity or debt investment or issuing a credit rating by the analyst • Clarifying needs and concerns with client or management • Guidelines related to developing specific work product 	<ul style="list-style-type: none"> • Statement of analysis` goal and objective • List of the questions to be covered by the analysis • Time frames and completion`s budgeting • Expected content of the report to be provided
<p>2. Collect input data</p>	<ul style="list-style-type: none"> • Financial statements, questionnaires, industry/economic data, other financial data. • Discussions with management, suppliers, customers, and competitors. 	<ul style="list-style-type: none"> • Organized financial statements. • Financial data tables
<p>3. Process data</p>	<ul style="list-style-type: none"> • Previous step data 	<ul style="list-style-type: none"> • Adjusted financial statements. • Common-size statements. • Ratios and graphs. • Forecasts.

4. Analyze/interpret the processed data.	<ul style="list-style-type: none"> • Input data along with the processed one 	<ul style="list-style-type: none"> • Analytical results
5. Formulate conclusions and recommendations	<ul style="list-style-type: none"> • Analytical results • Guidelines for published reports 	<ul style="list-style-type: none"> • Answered questions posed in Phase 1. • Recommendations

Source IFSTA (Robinson, Henry, Pirie, Broihahn, 20015, p 29)

4.4 FINANCIAL ANALYSIS TECHNIQUES

Because of the numerous reasons for performing financial analysis, the variety of available techniques, and the amount of data, it is necessary to fit an analytical approach to the specific situation. The specified clear purpose of the analysis can help the users to select the set of techniques that will best assist in decision making. (Robinson, Henry, Pirie, Broihahn, 2015)

From the variety of technics that can be helpful in evaluating a company`s data, we would like to focus on the ratio analyses as the most effective tool.

4.4.1 RATIO ANALYSIS

Ratios are an effective way to describe a company`s financial health and performance by a mathematical relationship between two quantities in financial statements. Most of the times, the computed ratio requires further analytical interpretation as it is just an indicator of some aspect of performance, but not a concrete answer to the whole situation. (Robinson, Henry, Pirie, Broihahn, 2015)

Financial ratios can provide a better understanding of the following:

- microeconomic relationships within a company
- financial flexibility, in other words, the ability to generate the cash needed to develop and meet the company`s obligations, even during unexpected events;
- management`s ability;
- changes in the company and/or relevant industry over time; comparison to the competitors

(Robinson, Henry, Pirie, Broihahn 2015)

According to the expert area, ratios are categorized by activity, liquidity, solvency and profitability groups. Each group is going to be represented in the following practical part and here are the most useful ratios that are going to be calculated

TABLE 2: CALCULATION OF SELECTED FINANCIAL RATIOS

Ratio	Numerator	Denominator
Inventory turnover	Sales or cost of goods sold	Average inventory
Days of inventory on hand (DOH)	Number of days in a period	Inventory turnover
Receivables turnover	Revenue	Average receivables
Days of sales outstanding (DSO)	Number of days in a period	Receivables turnover
Total asset turnover	Revenue	Average total assets
Current ratio	Current assets	Current liabilities
Quick ratio	Current assets - Inventory	Current liabilities
Debt ratio	Total liabilities	Total assets
Return on assets (ROA)	Net income	Total assets
Return on equity (ROE)	Net income	Equity
Return on sales (ROS)	Net income	Sales

Source (Robinson, Henry, Pirie, Broihahn 2015)

4.5 ALTMAN Z-SCORE BANKRUPTCY MODEL

We can measure changes of enterprise's bankruptcy using the Altman Z-score model which is calculated based on the data from financial statements. It uses profitability, leverage, liquidity, solvency and activity to predict whether a company has a high probability of being insolvent. It is computed using the following formula:

$$\text{Z-Score} = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E \quad (3.2)$$

Where:

- A = working capital / total assets
- B = retained earnings / total assets
- C = earnings before interest and tax / total assets
- D = equity / total liabilities
- E = sales / total assets

Based on the results it is possible to determine what was the bankruptcy probability for each year and make investment decisions about selling or buying a company's stock

- less than 1.8 – indicates red zone where the company is headed to bankruptcy
- 1.8 – 3.0 – represents a grey zone where the company is in the intermediate position
- 3.0 and more - shown as a green area where bankruptcy is not likely to happen

(Investopedia, accessed 14.03.2019 <https://www.investopedia.com/terms/a/altman.asp>)

4.6 SWOT ANALYSIS

This analysis is a commonly used framework for analyzing a company's competitive position and strategic planning improvement. SWOT stands for strengths, weaknesses, opportunities, and threats. The analysis examines internal and external factors, affecting a company's economic performance and assists in creating an effective business strategy.

- **Strengths** mean advantages of the company, things that elevate a company and put it to a more favourable position compared to the competitors.
- **Weaknesses** prevent an organization from performing at its highest level. These are the things where a company has to improve
- **Opportunities** describe advantages of external factors that a company can use.
- **Threats** include external troubles that possibly can harm the company and competitors' environment.

(Investopedia, acc 14.03.2019 <https://www.investopedia.com/terms/s/swot.asp>)

4.7 PEST ANALYSIS

This tool of economic analysis helps to evaluate the external environment of the company more closely than in SWOT analysis. PEST stands for political, economic, social and technological which are four areas analysis focuses on. The main goal is to determine aspects that can contribute or prevent from successful and competitive company's performance in its sector. The analysis can help to form a business strategy based on the conditions enterprise exists in and to predict possible risks. (Investopedia, acc 14.03.2015 <https://www.investopedia.com/terms/p/pest-analysis.asp>)

- **Political** part review government policies, general political situation, international relations, change in regulations and standards.
- **Economic** part focuses on the overall economic situation, interest and exchange rates, supply and demand, inflation and recession.
- **Social** part might include information about the demographic situation, lifestyle trends.

- **Technological** part describes the sector`s innovation and automation, its` speed and trend.

5 THEORETICAL PART

5.1 UKRAINIAN ECONOMIC SITUATION

In 1991, after the breakup of the Soviet Union Ukraine eventually gained its independence. According to an analysis of the Deutsche Bank (1992) the country had the best chances for bright future economic prospects amongst former peer Soviet Republics. However, in the reality separation turned out as a disaster due to multiple reasons and events that did not happen when they were supposed to. (Havrylyshyn, 2017)

First president Kravchuk completely ignored economy claiming that the State had to be formed first. All 3 first years of independence there were no economic reforms at all to kick off the transition to the market economy. In the end, capitalism in Ukraine has been achieved, but not the market competitive environment in its traditional understanding. (Aslund, 2015)

The lag in economic reforms, however, had a lot deeper consequences. The government was too weak (or most probably unwilling) to cut remained post-soviet elites from top of the power and juridical systems. They understood that the system is about to change, but no one wanted to lose their position, so they took their time to feel themselves comfortably stable. Firstly, it created an enormous level of corruption in all the level of powers, enabling decisions based on family and friends` connections, bribes and threatening. (Havrylyshyn, 2017)

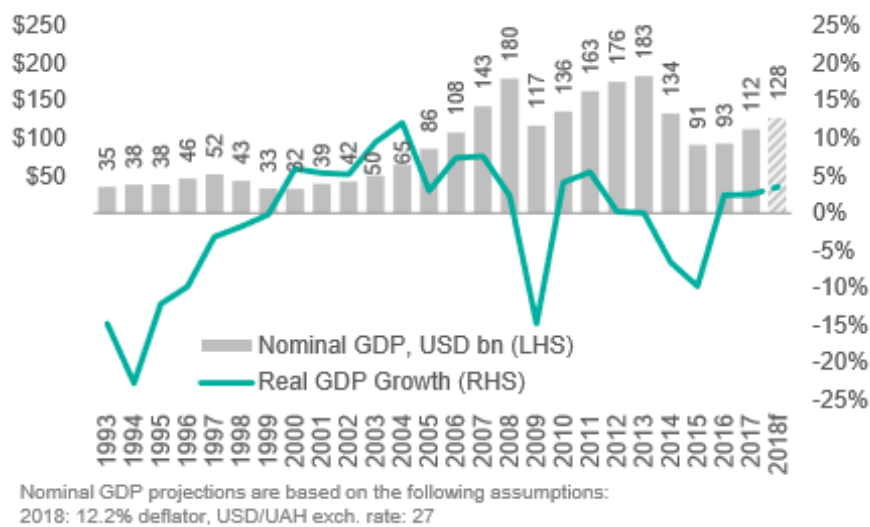
Secondly, the door to oligarchy formation had widely opened. Having easy access to the state-owned enterprises allowed the elite to “assign” oligarchs, clans, mafia groups huge parts of production sectors. This led to the privatized state capital concentration in the hands of a few while the average population was surviving in the edge of starvation. (Aslund, 2015)

Thirdly, Russian blackmail was facilitated and deeply rooted, being allowed by Kyiv politicians bribed with cash in hand. No strong political vectors of development nor boundaries were formed, government silently continued to operate under Russia`s heavy hand, manipulated by the gas prices. (Havrylyshyn, 2017)

Fourthly, it generated a poor business climate for small and medium enterprises which is kept till the modern days.

All these issues above discouraged EU from starting the process of bringing Ukraine closer into the European democratic environment as it happened with former Soviet-controlled Republics as Baltics, Poland, Czechoslovakia and so on. (Havrylyshyn, 2017)

FIGURE 1: RELATION BETWEEN NOMINAL AND REAL GDPs

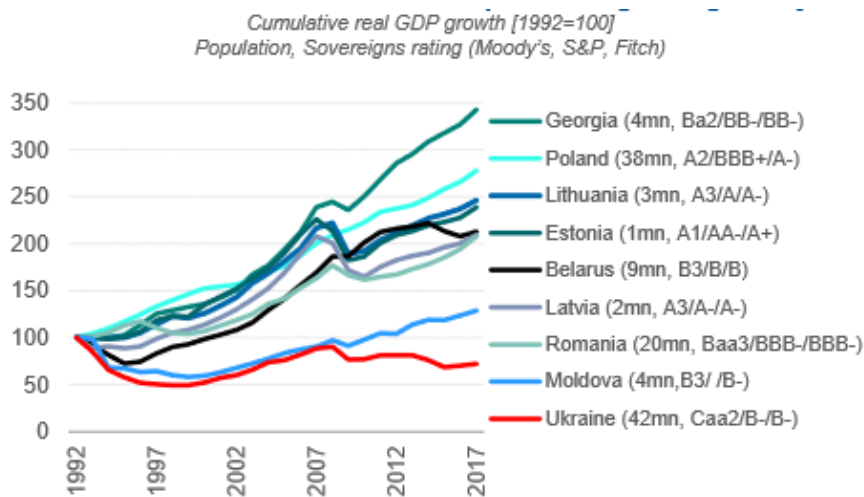


Source: EBRD Ukrainian diagnostic, 2018

Unfortunately, neither further presidents nor economic reforms implemented by them were not efficient enough to dismantle the political economy model based on the dominance of intertwined political and economic (oligarchic) interests. (Havrylyshyn, 2017)

Resistance to the change can be seen in graphs, after almost 30 years of independence late the second-best performing economy in the USSR is still in worse condition than before gaining autonomous status.

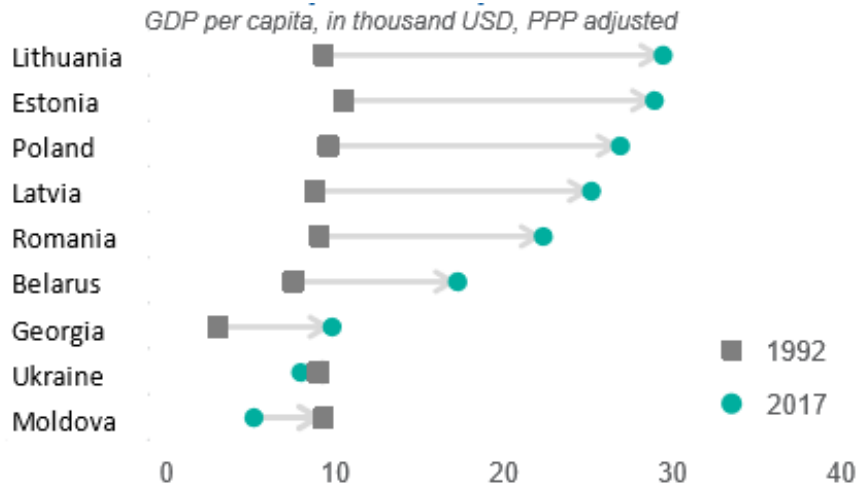
FIGURE 2: REAL GDP GROWTH



Source: EBRD Ukrainian diagnostic, 2018

“Ukraine’s GDP per capita is still only 65% of what it was on the eve of the break-up of the Soviet Union. With EUR 6,500 at PPP, it corresponds to a mere 23% of the EU average, making Ukraine the second poorest country in Europe (after Moldova and followed by Kosovo)” (Adarov, 2015, p. 6).

FIGURE 3: GDP PER CAPITA



Source: EBRD Ukrainian diagnostic, 2018

In the past 20 years Ukraine has been one of the slowest growing economies in the region due to the absence of strong internal economic leaders, strong dependence from world commodities market and IMF, vulnerability to the use of the market as a weapon in a conflict situation. (Oleinik, 2018)

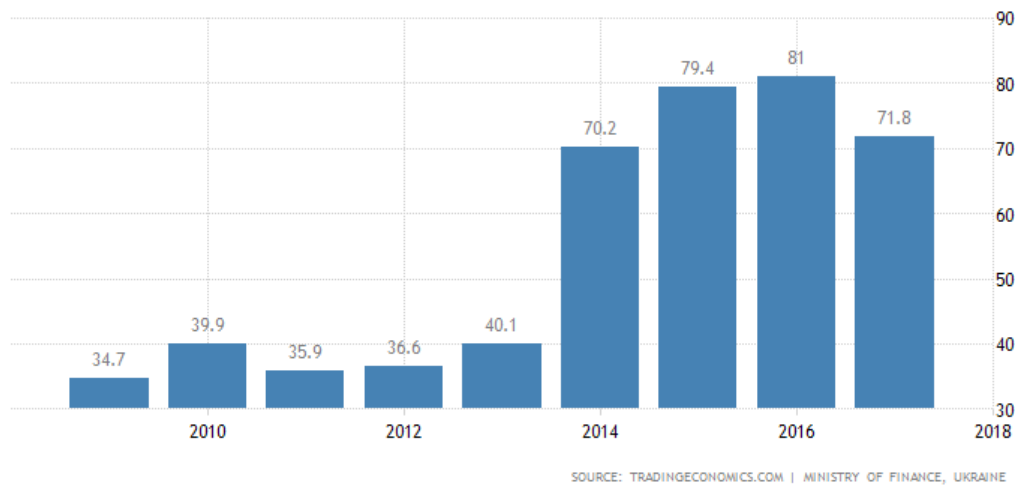
5.2 ECONOMIC CONSEQUENCES OF WAR WITH RUSSIA

Annexation of Crimea and Donbass military conflict with Russia caused an extra blow to the weakened economy. Not only a key trade partnership between the two countries had been a lot, but huge losses of infrastructure caused significant stress on GDP. (Oleinik, 2018)

“The military conflict in Donbas reduced Ukraine’s GDP by 2.5% [in 2014], including 1.9% due to the decline in the Donetsk and Luhansk regions and another 0.6% due to contagion effects” (Adarov, 2015, p. 14)

Even after a potential freeze of the conflict the country might continue feeling economic consequences as payments of combating the military aggression are still to be covered. Loans from the international financial institutions are partly helping to smooth out outcomes of the war, however, there is a constant postponing of the pay off and at according to the 2017 data, the government debt was 72 % of GDP (Oleinik, 2018)

FIGURE 4: UKRAINE GOVERNMENT DEBT TO GDP

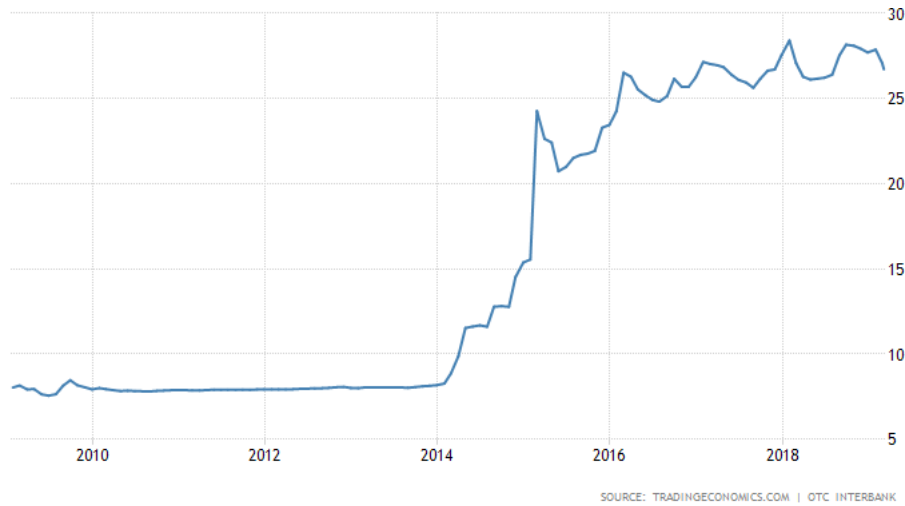


Source: *tradingeconomics.com*

Ukrainian currency, the hryvnia, since the start of the war has dropped almost 80% of its` value which made it one of the world`s worst-performing currencies. (Olearchyk Roman “Ukraine sharply raises interest rates up to 30%” Financial Times)

1 USD at the start of 2013 cost 8 HRU, while today in 2019 (5 years after the start of the war) it is already 27 UAH/ 1 USD.

FIGURE 5: DEVALUATION OF THE HRYVNIA



Source: *tradingeconomics.com*

In 2014 all Ukrainian banks received negative capital, due to the lost loans provided to households in occupied territories, and were significantly limited to lend to the economy of non-war effected parts of the country. Lost export revenues and budget cuts led to panic, pressure on the hryvnia and a massive outflow of deposits from banks, thus even deeper intensification of the crisis. More or less with the time, the free fall of the economy had been stopped, and through the Ukrainian economy stepped on the recovery way, it will definitely take years before it reaches the pre-war level. (Oleinik, 2018)

TABLE 3: € / UAH EXCHANGE RATE 2013-2017

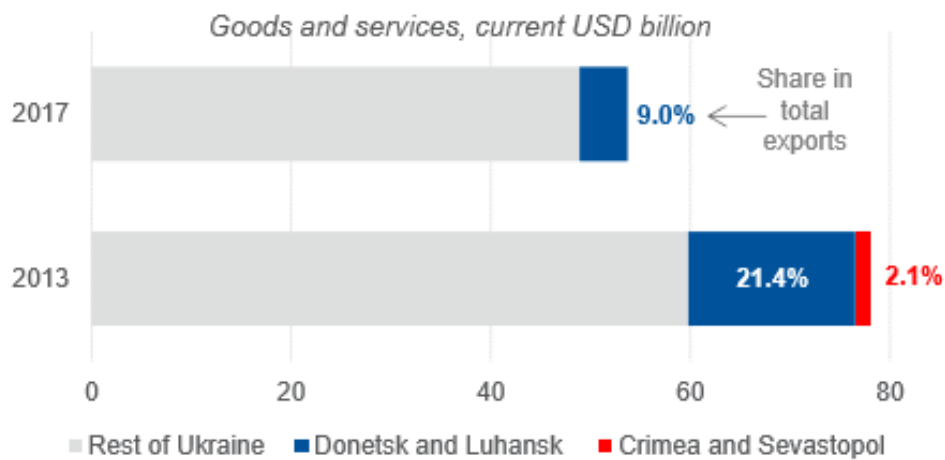
	31.12.2013	31.12.2014	31.12.2015	31.12.2016	31.12.2017
1 euro/hryvnia	11.04	19.23	26.22	28.42	33.49

Sources: *National Bank of Ukraine*

5.3 EXPORTS AFFECTED BY THE WAR IN THE EAST AND ANNEXATION OF CRIMEA

Ukrainian export underwent significant changes affected by the geopolitical issues, forced to seek alternative markets and adapt to the industrial links changes resulting from the Russian aggression in Crimea and eastern Ukraine.

FIGURE 6: DECREASE IN EXPORTS AFTER THE START OF THE WAR

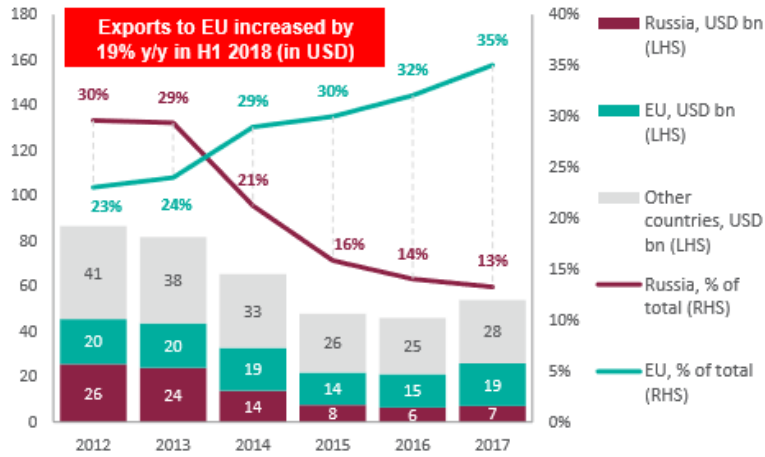


Source: EBRD Ukrainian diagnostic, 2018

Donbas was the largest commodity exporting region of Ukraine in 2013 – Donetsk and Luhansk together accounted for 21.4 % of Ukraine’s total merchandise exports in 2013. Combined with Crimea and Sevastopol, in total exports of goods and services was equal to 23.5% in 2013, decreasing to 9.0% in 2017. (Kintsurashvili, Kresic 2018)

On 15 March 2016, cargo traffic with the occupied Donbas area was suspended. Around 60 enterprises lost its` production links with this area. In 2016, these enterprises accounted for 14% of total output in metallurgy, 19% of total output in coke production and 20% of total output in mining. (Kintsurashvili, Kresic 2018)

FIGURE 7: DISTRIBUTION OF EXPORTS PER DESTINATION 2012-2017



Source: EBRD Ukrainian diagnostic, 2018

However, Ukraine managed to move away from Russia in 2014-15, before Russia banned all Ukrainian food imports and cancelled the free trade regime between the two countries. The negative impact of the trade suspensions done by Russia may be partly compensated by the Ukraine-EU Deep and Comprehensive Free Trade Area and by continued diversification of Ukraine’s exports. (Kintsurashvili, Kresic 2018)

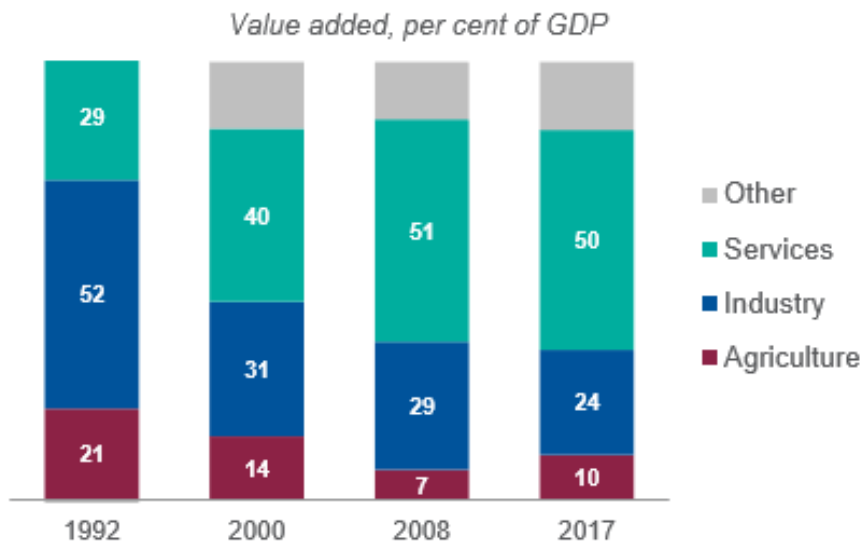
5.4 MACHINE BUILDING IN UKRAINE

Historically, machine building was one of the strongest sectors of the Ukrainian economy. The infrastructure built during Soviet times allowed the system to function as a clock thanks to the effects used resources, human capital, transportation system.

With the break up of the Soviet Union and deep crisis, lots of enterprises stopped the production and never recovered from the slump. Remained factories in order to survive continued using old system connections focusing on the existed economic ties rather than trying to expand outside post-Soviet countries. Familiarity in production standards and formed partners relations made the trade for everyone lucrative and easy to continue, however, it formed industry`s dependency on the Russian market and with the war breaking output the industry under massive stress. (Saha, Giucci, Naumenko, 2014)

During the time of independence, Ukrainian economy has made a significant shift from Industry to Services, though the machine building sector is still one of the largest sectors within Ukrainian manufacturing and plays a significant role for the GDP. According to Ukrstat, the total output of the sector in 2012 was calculated to 19.4 bn USD. (Saha, Giucci, Naumenko, 2014)

FIGURE 8: GDP VALUE ADDED PER SECTOR 1992-2017



Source: EBRD Ukrainian diagnostic, 2018

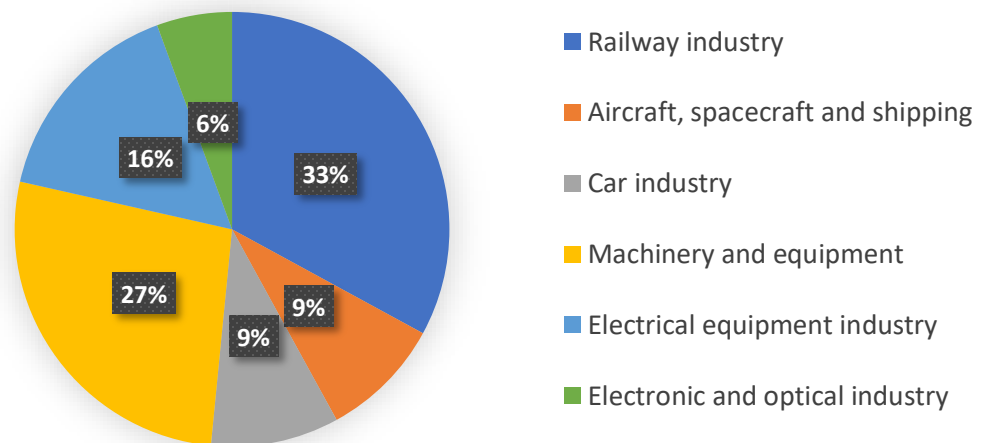
The machine building sector is divided by 6 subsectors:

1. Railway industry
2. Aircraft, spacecraft and shipping
3. Car industry
4. Machinery and equipment
5. Electrical equipment industry
6. Electronic and optical industry

Based on the data from Ukrstat the graph below shows that the transport industry represented by sectors 1-3, is one of the strongest sub-parts with the total output of 51%. (Saha, Giucci, Naumenko, 2014)

FIGURE 9: MACHINE BUILDING SUBSECTORS OUTPUT, 2012

Ukrainian machine building subsectors output



Source: Ukrstat, own calculations

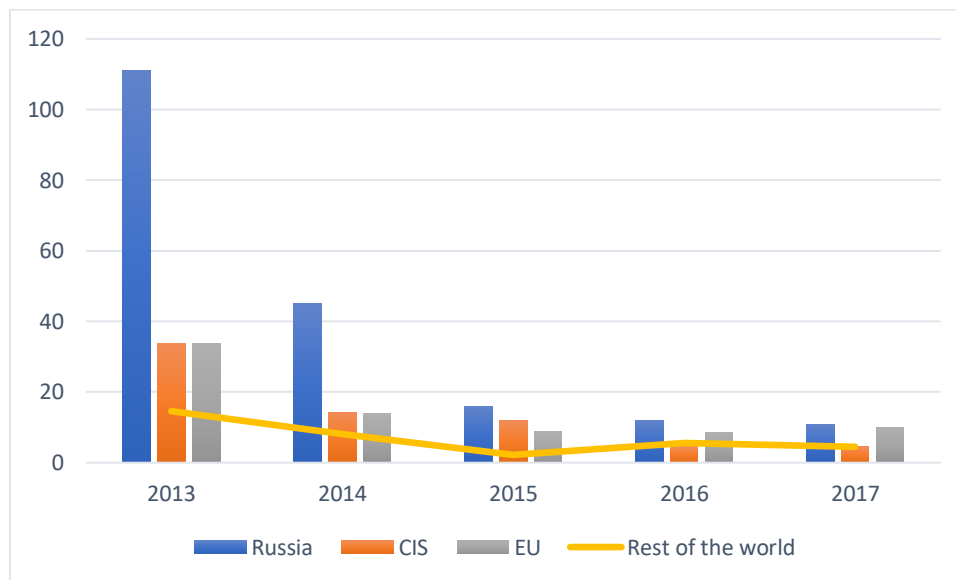
Machinery and equipment is the second biggest subsector which consists of different sorts of machinery production:

- hard and light machinery
- general-purpose
- agricultural
- metal-forming
- any other type that does not belong to the electrical equipment

5.4.1 UKRAINIAN HARD MACHINERY BUILDING

Hard machinery building in Ukraine includes the production of mining, lifting, metallurgical and power equipment. Geographically, the main centres of the industry are located in the Donbass (Donetsk, Kramatorsk, Mariupol) and central Ukraine (Dnepr, Krivoy Rog). One of the largest producers are situated in the city of Kramatorsk, Novokramatorsky and Starokramatorsky machine-building enterprises, specializing in producing forging and pressing machines, metallurgical equipment, slabbing, special large heavy metal-cutting machines for the metallurgical industry. These 2 factories were affected by the war in Donbass while shelling of Kramatorsk. Unfortunately, machine building enterprises in Lutuhino, Debaltsevo, Stakhanov, Donetsk were occupied by Russian invaders in the territory of Donbas

FIGURE 10: EXPORT OF HARD MACHINERY BUILDING PRODUCTS, 2013-2017

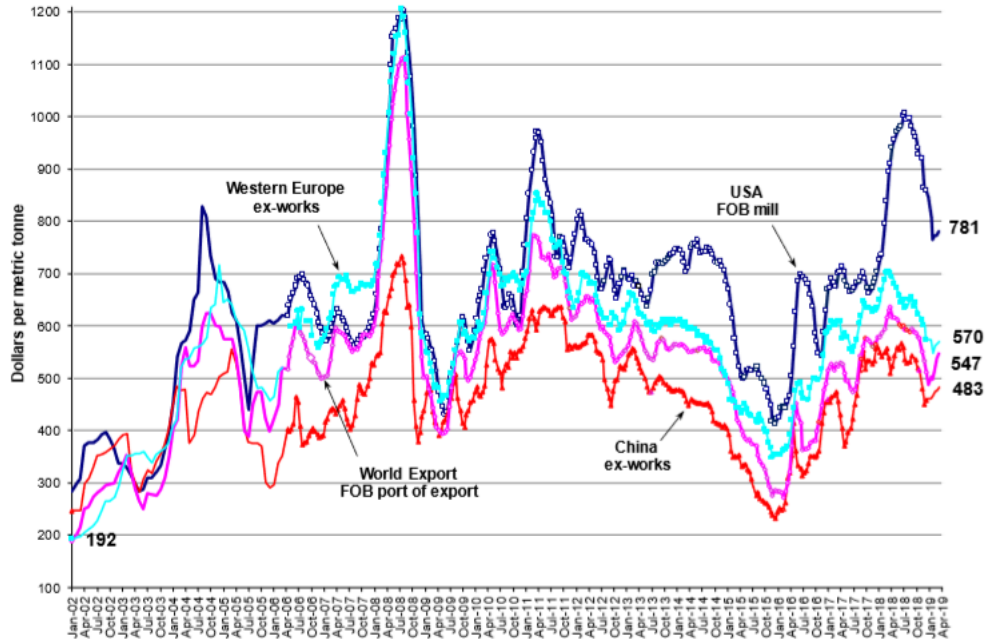


Source: Ukrstat, own calculations

The war had a massive impact on the exports of the products, it damaged a strong infrastructural system, broke trade market connections, caused inflation, currency devaluation, fall of production. According to Ukrstat, in the pre-war 2013 value of export to Russia calculated as 1227 bn UAH, with the following decrease to the 242 bn UAH in 2017. Despite the decrease in

trade with CIS countries, Ukraine has managed to keep EU trade on the same pre-conflict level. (Saha, Giucci, Naumenko, 2014)

FIGURE 11: WORLDWIDE STEEL PRICES 2002-2019, \$ / METRIC TONNE



Source: www.steelbenchmarker.com

An important factor that has to be taking into consideration when talking about hard machinery building is world steel price. It directly affects sales volume and market intensity within the industry. As mostly all hard machine-building factories` customers operate within the metallurgical sector, the price change usually is almost immediately felt on the production volumes.

Particularly, from January 2013 till October 2015 steel market was in a deep crisis caused by the market saturation and decrease of demand which led to prices fall. This situation had a numerical impact on the analyzed enterprise performance which will be covered in the following part.

6 PRACTICAL PART

MACHINE

BUILDING

ENTERPRISE

MAGMA



Machine-building company LLC «MAGMA» is a modern integrated machine building enterprise that manufactures complex technical products.

It is situated on the south of Donbass region, Mariupol city. Mariupol plays a strategically important role in Ukraine`s infrastructure since Soviet times it has been one of the major industrial hubs. Located right by the Azov sea, it has 3 massive metallurgical factories and highly developed seaport, which altogether makes the city a logistically significant trade area. Mariupol has a State technical university specialized on metallurgy, engineering, machine building and all other branches connected to it.

Luckily, the city had avoided the Russian occupation, though proximity to the border and unpredictability of political situation has been a source of tension since 2014.

FIGURE 12: SITUATION IN THE EAST OF UKRAINE 2017



Source: Ukrainian ministry of defence, www.mil.gov.ua/

Magma enterprise emerged in 1996 when a group of 4 fellow engineers decided to start a freelance after all lost their job due to the suspension of production on the main Mariupol machine-building factory Azovmash. They started to offer their services in the production of the broken machine details to the main metallurgical factories. They collected minor urgent orders from them and using their old connections on the Azovmash, would rent a machine for a limited time period (for ex. at night) to produce needed detail. Why factories agreed to use their services? Most of the time in case of damage or breakdown it took too much time for the main factory to cooperate about the substitution of broken parts with the machine-building factory, while repair must be done as soon as possible not to affect the production. That is why an option for a fast and efficient broken details replacement was advantageous for both parties. Being highly technically professional and reliable after years of successful cooperation a group was trusted and respected within the production community. Unsurprisingly they used an opportunity to build their own production when such had appeared.

In 2001 they bought an abandoned area of a former automotive factory and started to buy old machine tools that with help of technicians got repaired and functional. Since then the enterprise is in the process of constant growth and development expanding its services and product range. The enterprise manufactures non-standard equipment for different branches of industry, carrying and lifting equipment, spare parts for metallurgical and mining industries, sea and river ports, machines and equipment for coke and chemical plants.

Thanks to the medium size of the factory it is convenient to control the quality of metal-working and assembly production. High-skilled professionals along with modern equipment allow manufacturing unique in its property's equipment, particularly spare parts with different accuracy grade and dimension weighing up to 120 t. (Magma website. Acc. 12.03.2018. <http://new.magma.ua/>)

The company quality management system is implemented and applied by the requirements of international standards DIN EN ISO 9001:2015, which is accompanied by the certificate of TUV Thuringen (Germany). The system allows organizing accurate interaction of commercial, technical and production departments at all stages of products manufacturing – from raw materials and components purchase to final output shipment and customers delivery.

6.1.1 PRODUCTION STRUCTURE AND SERVICES

The company manufactures products based on the received orders and adjusting the production cycle according to the current project. The production cycle is a complex system that has to include all stages needed for the final product. For diverse manufacturing, the company has the following areas/departments responsible for different functional sets of the production process.

TABLE 4: MAGMA`S PRODUCTION SERVICES

Pre-work and welding area	Heat processing area
<ul style="list-style-type: none"> • Manufacture of metal structures • Repair of metal structures and assemblies 	<ul style="list-style-type: none"> • Tempering furnaces • Induction heating unit
Mechanical processing area	
<ul style="list-style-type: none"> • Boring machines processing • Grinding machines processing • Gear processing 	<ul style="list-style-type: none"> • Turning • Milling

Sources: company`s website <http://new.magma.ua/>

Additionally, the company offers engineering services which include:

- Research of the technical feasibility, marketing risks, economic prospects;
- Design-project development, schemes, drawings, processing of customers` requests;
- The accompanying stage- post-project production maintenance services, supervision of installation and quality control;
- Exploitation recommendations and support after the product`s delivery

Finally, logistics services are available to deliver the final product both within Ukraine and abroad.

6.1.2 PRODUCTS

The company focuses on the production of spare parts for metallurgical, mining, building, and other hard industries equipment.

The production department is flexible in manufacturing a wide range of unique kinds of products due to the skilled design engineers, developed technological departments, and well-integrated production facilities. (Magma`s website <http://new.magma.ua/> Accessed 10.03.2019)

Products are divided by categories:

- Spare parts for crane equipment and lifting mechanisms
- equipment for sintering production
- equipment for blast furnace departments
- equipment for converter departments
- equipment for rolling departments
- gearboxes

Average production time takes up to 3-6 months depending on the project`s volume and complexity.

6.2 ECONOMIC ANALYSIS

In the following practical part economic analysis of the OOO Magma is going to be performed using the tools and methods described in the methodology. Calculations are based on the data from financial statements of years 2013-2017 as it is a perfect timeline to compare the performance of the company before and after the war with Russia and the deep economic crisis it caused.

Firstly, we are going to perform financial ratios analysis. Then we will test the company`s stability with the help of bankruptcy Altman Z-score model. Using SWOT and PEST analysis prospects of the company are going to be reviewed.

All the data had been collected directly from the economic and financial departments of Magma enterprise during the author`s internship in the company.

6.3 ANALYSIS OF FINANCIAL RATIOS

In this part, the main financial ratios are going to be calculated and interpreted to evaluate the enterprise's financial performance.

6.3.1 ACTIVITY RATIOS

Let's start with activity ratios which can help to examine operating efficiency and how effectively company manages different activities, in particular, use of various assets.

INVENTORY TURNOVER RATIO shows how many times in a given time period the inventory was sold and restocked.

$$\text{Inventory turnover} = \text{Sales} / \text{Inventory} \quad (6.1)$$

TABLE 5: INVENTORY TURNOVER RATIO, THOUSAND UAH

Inventory turnover ratio	2013	2014	2015	2016	2017
Sales	59 893	97 151	170 377	211 648	298 332
Inventory	4 766	20 397	41 011	18 067	10 531
Inventory turnover	12.6	4.8	4.2	11.7	28.3

Sources: Magma's financial reports database, own calculations

Based on the results we observe the decreasing trend in almost 3 times between the years 2013 (12.6) and 2014 (4.8). The situation got worse in 2015 with an index of 4.2. These years we had due to the steel prices decrease in the global market accompanied by the political and economic situation in the country. The market conditions were weak, which caused overstocking and slow-moving inventory. However, in 2016 (11.7) situation became significantly better, almost reaching 2013 rate of 12.6 and following 2017 with rate 28.3 which is more than twice higher than the 2013 index.

The same tendency can be seen in DAYS OF INVENTORY ON HAND

$$\text{DOH} = \text{Inventory turnover} / 365 \quad (6.2)$$

TABLE 6: DAYS OF INVENTORY ON HAND

Inventory on hand	2013	2014	2015	2016	2017
DOH	29	77	88	31	13

Sources: Magma`s financial reports database, own calculations

The highest amount of days needed to sell ending inventory considering a given inventory turnover was 88 days in 2015 and the lowest one is in 2017 with 13 days. This is a favourable situation for the business, indicating faster sales of inventory

TOTAL ASSET TURNOVER examines a company`s ability to generate revenue with an available level of assets.

$$\text{Total assets turnover} = \text{Sales} / \text{Total assets} \quad (6.3)$$

TABLE 7: TOTAL ASSETS TURNOVER RATIO, THOUSAND UAH

Total asset turnover ratio	2013	2014	2015	2016	2017
Sales	59 893	97 151	170 377	211 648	298 332
Total assets	66 064	96 745	143 408	149 647	173 586
Total assets turnover	0.9	1.0	1.2	1.4	1.7

Sources: Magma`s financial reports database, own calculations

There is a positive increasing trend of this ratio, signalling about the company`s efficient use of its` assets. Despite the 2014-2015 situation, the ratio is not only saved the pre-war level index but kept increasing year by year which signals about well-made managerial strategy for

generating sales based on the given level of assets. The highest index 1.7 in 2017 means that for every 1000 UAH of average assets the company is generating 1700 UAH of profit.

RECEIVABLES TURNOVER RATIO indicates how efficiently credits issued to customers are being collected during the time period.

$$\text{Receivables turnover} = \text{Sales/ receivables} \quad (6.4)$$

TABLE 8: RECEIVABLES TURNOVER RATIO, THOUSAND UAH

Receivables turnover ratio	2013	2014	2015	2016	2017
Sales	59 893	97 151	170 377	211 648	298 332
Receivables	22 285	28 960	44 663	42 636	61 831
Receivables turnover	2.7	3.4	3.8	5.0	4.8

Sources: Magma`s financial reports database, own calculations

The table above shows the favourable increasing receivables turnover ratio trend. That means that the company adjusts to the current situation, implementing expedient credit policy and chooses trustworthy customers. The only insignificant decrease by 0.2 can be seen in 2017 where receivables increased from the previous year by 346 thousand €, though this ratio is still higher than in 2013.

$$\text{DOS} = \text{Receivables turnover/ 365} \quad (6.5)$$

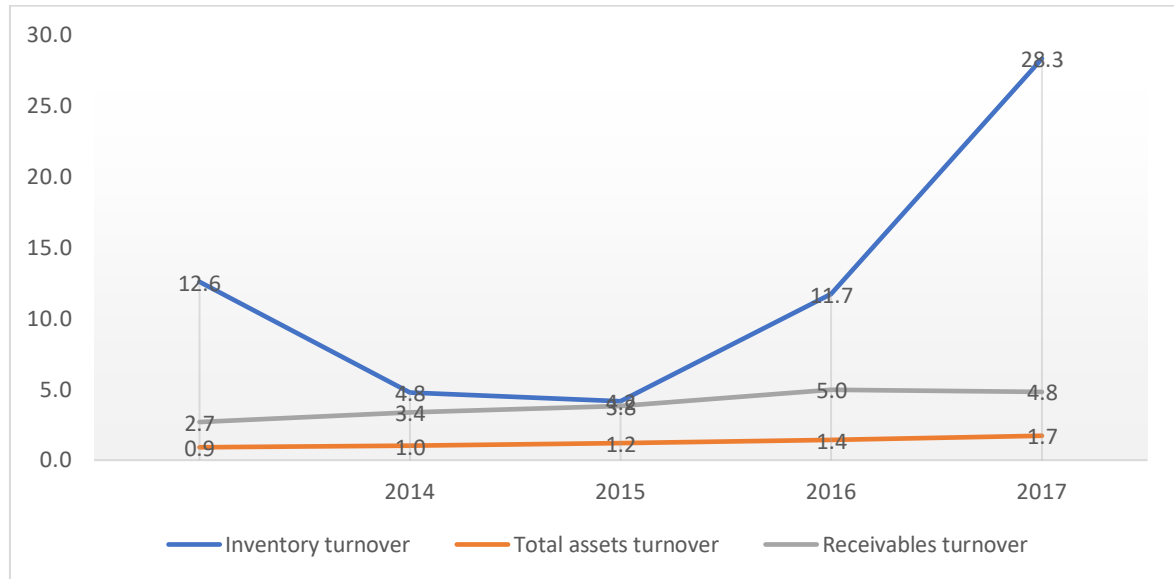
TABLE 9: DAYS OF OUTSTANDING PAYMENT

Days of outstanding payment	2013	2014	2015	2016	2017
DOS	136	109	96	74	76

Sources: Magma`s financial reports database, own calculations

Positive tendency as well is seen in the days of outstanding ratio. 2017 period (76) is almost 2 times less than in 2013 (136), which indicates a higher speed of customer`s payments and efficiency of collection`s department. The lowest amount to convert accounts receivables to cash was in 2016 with 74 days needed.

FIGURE 13: ACTIVITY RATIOS



Sources: Magma`s financial reports database, own calculations

To sum up, the overall trend for activity ratios is positive, with a little decrease in 2014-2015, but rehabilitation in the following years. Total assets turnover and receivables turnover are quite smooth and not exceeding 5, whereas inventory turnover is more dynamic towards them reaching its` highest point in 28.3.

6.3.2 LIQUIDITY AND SOLVENCY RATIOS

Liquidity ratios are useful in determining the company's liquidity, which means how easily the company can cover its short term obligations without raising external capital.

CURRENT RATIO is the ratio which indicates current assets available to satisfy current liabilities

$$\text{Current ratio} = \text{Current assets} / \text{Current liabilities} \quad (6.6)$$

TABLE 10: CURRENT RATIO

Current ratio	2013	2014	2015	2016	2017
Current assets	37 344	67 892	114 335	100 341	100 843
Current liabilities	8 999	14 388	15 915	19 719	38 597
Current ratio	4.1	4.7	7.2	5.1	2.6

Sources: Magma's financial reports database, own calculations

Current ratio results show an adverse situation for the company in years 2013-2016 and indicate inefficient use of assets. The worst rate of 7.2 was observed in 2015 when current assets were higher than in 2014 while liabilities accordingly smaller. However, due to the significant increase in liabilities in 2017, the ratio came closer to the norm of 1.5-2.5. To improve the liquidity the company can ease the short-term lending possibility.

QUICK RATIO is a stricter liquidity indicator than current ratio as it examines only the most liquid current assets which can be quickly converted into cash and cause minimum impact on price

$$\text{Quick ratio} = \text{Current assets} - \text{Inventory} / \text{Current liabilities} \quad (6.7)$$

TABLE 11: QUICK RATIO, THOUSAND UAH

Quick ratio	2013	2014	2015	2016	2017
Current assets	37 344	67 892	114 335	100 341	100 843
Inventory	4 766	20 397	41 011	18 067	10 531
Current liabilities	8 999	14 388	15 915	19 719	38 597
Quick ratio	3.6	3.3	4.6	4.2	2.3

Sources: Magma`s financial reports database, own calculations

Quick ratio results are similar to the Current one, indicating that the company has to provide more short-term lending in order to use assets effectively. The best liquidity indicator of 2.3 was in 2017, while the worst was observed in 2015 (4.6)

DEBT RATIO is useful in indicating the number of total assets that are provided by debt

$$\text{Debt ratio} = \text{Liabilities} / \text{Total assets} \quad (6.8)$$

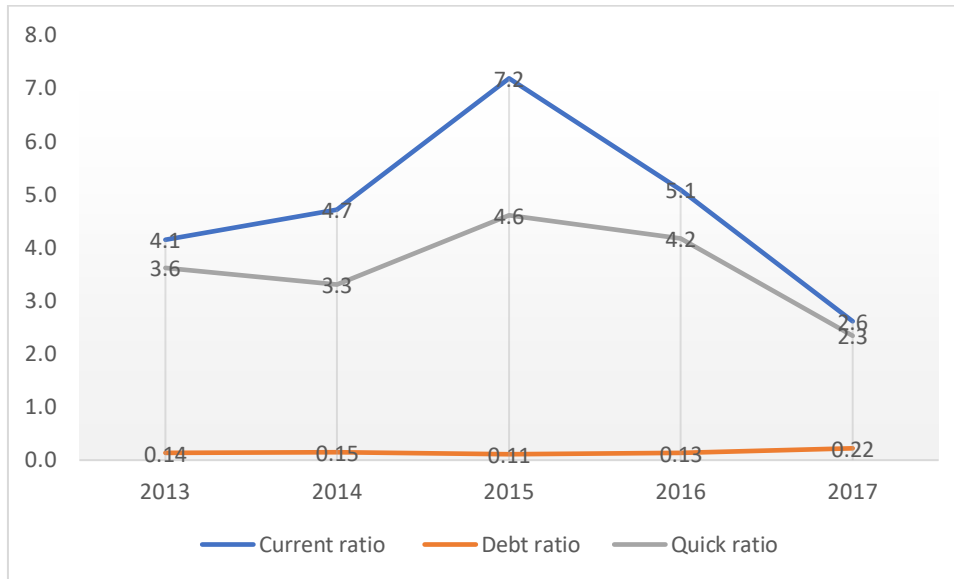
TABLE 12: DEBT RATIO, THOUSAND UAH

Debt Ratio	2013	2014	2015	2016	2017
Liabilities	8 999	14 388	15 915	19 719	38 597
Total assets	66 064	96 745	143 408	149 647	173 586
Debt ratio	0.14	0.15	0.11	0.13	0.22

Sources: Magma`s financial reports database, own calculations

The company shows a relatively low debt ratio, which means stable financial position thanks to the greater amount of assets, than debt. The lowest indicator of 11.1% was calculated in 2015 with the lowest liabilities (15 915) and relatively high assets (143 408). Percentage rise in 2017 was caused by the increase of liabilities, as the company was opening a new heat treatment department which required a major bank loan. Generally, the company is careful with debt obligations, increasing the indicator only for a growth purpose.

FIGURE 14: LIQUIDITY AND SOLVENCY RATIOS



Sources: Magma`s financial reports database, own calculations

Summing up, based on the liquidity ratios the company could be more opened in terms of using its assets to generate a bigger profit, however taking into consideration unstable economic situation such a cautious approach might be reasonable. The debt ratio is relatively small during the whole period with the only increase caused by the growth in production.

6.3.3 PROFITABILITY RATIOS

Profitability ratios can assist in measuring the company`s ability to generate profits from its resources (assets).

RETURN ON EQUITY can show the trend of how profitable a company relative to its equity

$$\text{Return on equity} = \text{Net income} / \text{Equity} \quad (6.9)$$

TABLE 13: RETURN ON EQUITY, THOUSAND UAH

Return on equity	2013	2014	2015	2016	2017
Net Income	2270	614	815	2 784	8 189
Equity	57 065	82 357	127 493	129 928	134 989
ROE	3.98%	0.75%	0.64%	2.14%	6.07%

Sources: Magma`s financial reports database, own calculations

ROE results represent a curve of a massive decrease of 3.3% in 2014 following by increase and the even better result compared to the pre-war period in 2017. (4% and 6% accordingly). Such a slump was caused by Net income decrease, as a result of 2014 hryvnia devaluation. Since the company`s decision in 2015 to shift partners` contracts main currency from hryvnia to dollar, the situation started to stabilize.

RETURN ON ASSETS indicates how profitable a company relative to its` total assets

$$\text{Return on assets} = \text{Net income} / \text{Total assets} \quad (6.10)$$

TABLE 14: RETURN ON ASSETS, THOUSAND UAH

Return on assets	2013	2014	2015	2016	2017
Net Income	2270	614	815	2784	8189
Total assets	66 064	96 745	143 408	149 647	173 586
ROA	3.44%	0.63%	0.57%	1.86%	4.72%

Sources: Magma`s financial reports database, own calculations

Relatively similar situation to the previous ratio can be seen with ROA. Major decrease observed during 2014-2015 (0.63% and 0.57%) followed by increase in 2016 (1.86%). The best result was achieved in 2017(4.72%). Overall the situation is favourable, detecting the company`s ability to earn more money on less investment.

RETURN ON SALES ratio helps to evaluate operating efficiency, in particular, how much profit is generated per euro of sales

$$\text{Return on sales} = \text{Net income} / \text{Sales} \quad (6.11)$$

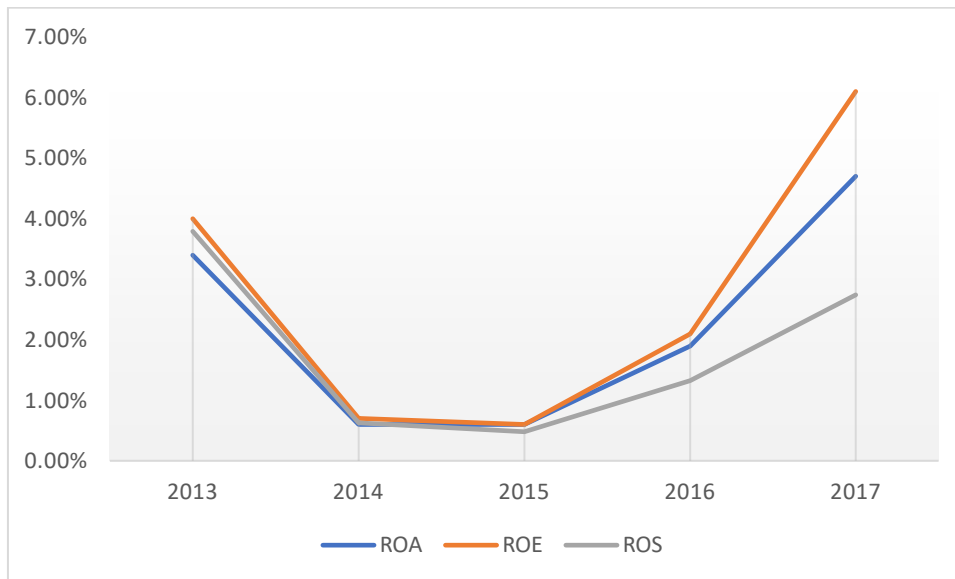
TABLE 15: RETURN ON SALES, THOUSAND UAH

Return on sales	2013	2014	2015	2016	2017
Net income	2270	614	815	2784	8189
Sales	59 893	97 151	170 377	211 648	298 332
ROS	3.79%	0.63%	0.48%	1.32%	2.74%

Sources: Magma`s financial reports database, own calculations

ROS ratio results show how much per cent of revenue the company converts to net income. Starting with a quite high index in 2013(3.79%), 2014(0.63%) ratio dropped by 3.2%. Reduction continued in 2015(0.48%) with the decrease in net income and increase in sales. Improvement began in 2016(1.32%) and continued in 2017(2.74%). However, the difference between 2017 and 2013 is still 1.1% which means the company still hasn't reached the pre-war level of generating profits from revenues.

FIGURE 15: PROFITABILITY RATIOS



Sources: Magma's financial reports database, own calculations

Summing up, profitability ratios as well have development trend with a curve of the decrease in 2014-2015 following by increase in following years. Supposed reasons for this behaviour is world fall of steel prices, hryvnia devaluation, inflation, market changes. Luckily, the company has found ways to improve and strengthen its financial position by effective marketing policy implementation.

6.4 BANKRUPTCY MODEL

The enterprise's bankruptcy chances are measured in the table below using Altman Z-score.

TABLE 16: ALTMAN Z-SCORE MODEL

Altman Z-Score	coefficient	2013	2014	2015	2016	2017
z1	1.2	0.43	0.55	0.69	0.54	0.36
z2	1.4	0.83	0.81	0.87	0.85	0.76
z3	3.3	0.04	0.01	0.00	0.01	0.05
z4	0.6	0.00	0.00	0.00	0.00	0.00
z5	1	0.91	1.00	1.19	1.41	1.72
z score		2.7	2.8	3.2	3.3	3.4

Sources: Magma's financial reports database, own calculations

Calculations show the trend for Magma's stability during the examined time period. In 2013(2.7) and 2014(2.8) the company was situated in the grey area, even though closer to the green border, they still had an unclear position. In 2015(3.2) the enterprise entered the green area, securing its ability to be solvent. Since then the score is increasing and lowering chances of bankruptcy.

6.5 SWOT AND PEST ANALYSIS

SWOT analysis helped to determine major internal and external factors affecting the company economic health at the examined time period. The key strength of the company is an effective management and marketing strategy that help to use resources efficiently and expand the manufacturer. Company`s development opportunities are increasing with the implementation of modern equipment, which allows producing a wider range of products and broadens supply.

FIGURE 16: SWOT ANALYSIS

<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none">• Effective marketing and management departments• Mobility, absence of bureaucracy• Full cycle of production, from designing to delivering• Rational use of resources• Flexible price policy	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none">• Lack of manufacturing automatization• Delayed cooperation between departments• Lack of professional human capital
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none">• New trading partners on the domestic market• Expansion to the wider range of overseas markets• Modern innovative equipment	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none">• Competitors• Currency instability• War around the corner• Absence of real economic reforms in the country

Sources: Magma`s economic development department, own work

Main enterprise`s weakness is a lack of professionals with the required engineering knowledge base. As the company grows and opens new production departments, qualitative human capital is essential to maintain needed production results. Threats can be addressed to the unpredictable economic situation in Ukraine and hryvnia instability as well as lack of effective reforms allowing easier growth.

For a better examination of external factors affecting the company, we are going to use PEST analysis

FIGURE 17: PEST ANALYSIS

POLITICAL	ECONOMIC	SOCIAL	TECHNOLOGICAL
<ul style="list-style-type: none"> -Oligarchy at power -War in Donbass -Threat of mafia 	<ul style="list-style-type: none"> -Government debt -Currency devaluation -Inflation 	<ul style="list-style-type: none"> -Migration -Education system 	<ul style="list-style-type: none"> -Old equipment -Threat of giants

Sources: own work

As has been already mentioned, since the country gained independence, oligarchy is directly influencing political decisions based on their interests. That stops the government system from solving disadvantageous sides of the system. Not helping the situation war in Donbass which made Ukraine more vulnerable and unstable, losing human, financial, territorial resources. The company is located in a strategically important area of the country, so hopefully, the Ukrainian government will do their best to defend the city in case of further aggression.

Another danger zone is a probability of enterprises to be taken away by mafia business structures still functioning since the 90s. Magma was attempted to be deprived in 2015 by one of such structures, however, top-managers successfully saved the ownership by attracting the attention of the press and making the situation public thus scared invaders away.

The economic side has been discussed in the Chapter Economical position of Ukraine, the key points are included in the table analysis

The social sector has been feeling significant changes along with the whole country. Intellectual emigration started in the 90s and have been increasing since then. In Magma`s case, due to the unstable political situation around 15% of workers have migrated to Russia or Poland. To find a substitution is another challenge due to the weakening quality of education caused by brains outflow and unfortunate education system reforms.

Technologically, Ukraine is way too outdated in machines equipment. This is a great environment for Magma to stand out with its modern machines on the domestic market, but not enough to be technologically competitive with giants as Germany and China.

7 CONCLUSION AND RECOMMENDATIONS

The company has successfully overcome economic default, caused by the 2014 steel market crisis, the war in Donbass and invasion of Russia. Moreover, from an alternative point of view, the war was advantageous for Magma as it liquidated some of the key competitors who didn't survive through, thus allowed the company to expand. New manufacturing departments had opened, the number of employees increased, new trade partnerships were made.

However, the machine-building market has intensified due to the low demand, and in such conditions, the company still has to fight for the customers. My improvement suggestion is to move towards direct marketing, which means building a long-lasting partnership with clients. The company should approach the clients not through tenders, but directly, offering services, diagnostics, being up-and-coming in providing solutions for problems. After sales follow up and support approach should be changed from “upon request” to pro-active which can help to build closer cooperation and increase chances for further orders.

In order to increase profitability and particularly return on assets, I could suggest the company's marketing department to add prepayment requirements into the contracts. At the moment the company takes the projects without any payment in advance which increases costs of materials and inventory's along with invested capital. It generates risks, considering the time of the production cycle (3-6 months) each delayed receivables is slowing down development dynamics. In general, having a bigger amount of current assets would allow the company to invest in the new, more innovative equipment, expand production range, thus increase potential revenue by entering into the wider market.

Even though prepayments look like a key to growth, I will not recommend implementing it, because it will significantly decrease the enterprise's competitiveness. The market demand is way less than supply, which makes the company agree on the conditions required by customers.

As well the company has to focus on improving working conditions to keep quality employees from seeking jobs on the EU market. This can be done by education programs, newer equipment, competitive salary, personal approach.

I hope the management will optimize decisions and adjust the strategy to avoid further risks, expand new horizons and combat any challenges on this path.

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10 APPENDIX

Main financial items from the balance sheet and income statement, 2013-2017, thousand UAH

BS	2013	2014	2015	2016	2017
Total fixed assets	28720	28853	29073	49306	72743
Intangible assets	165	106	59	430	608
Non-current assets	23814	22558	24135	26350	61810
Long term financial investment	4252	4252	4252	4252	4252
Material	2828	15534	34352	11544	6231
Inventory	4766	20397	41011	18067	10531
receivables	22285	28960	44663	42636	61831
Total current assets	37344	67892	114335	100341	100843
Total assets	66064	96745	143408	149647	173586
Equity	57065	82357	127493	129928	134989
registered capital	1600	1600	1600	1600	1600
Reserve fund	687	1952	687	867	1277
Retained earnings	54778	78805	125206	127461	132112
Liabilities	8999	14388	15915	19719	38597
Suppliers	1686	6699	8584	11646	18718
Bank loan	3112	3621	4635	5359	14121
revenue	59893	97151	170377	211648	298332
net income	2270	614	815	2784	8189