

Kyiv National University of Trade and Economics
The Department of World Economy

FINAL QUALIFYING PAPER (PROJECT)

on the topic:

**« EXPORT STRATEGY OF ENTERPRISES IN THE FIELD OF
MINING MINERALS»
(based on the data of
PE “PRYDNIPORVSKA FUEL AND ENERGY COMPANY”, Kryvyi Rih)**

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INTRODUCTION

The rise in prices for metals and minerals has led to increased mineral production in several parts of the world. New technology and the development and spread of consumer electronics have resulted in demand increase for rare metals and minerals. This has led to greater focus from the EU, China, the USA and several other countries on securing access to strategic and economically important minerals and metals. The mineral industry produces numerous commodities that are necessary for society.

The mineral industry provides employment, creates positive local and regional ripple effects and produces tax revenues for the community. Ukraine is rich in mineral resources and their development will open new opportunities for the mineral industry in Ukraine. The Government's objective is a profitable mineral industry with strong value creation and good growth. The Ukrainian mineral industry shall be among the world's most environmental-friendly and must actively seek forward-looking solutions. Predictable and efficient administration and procedure shall be the rule for handling of regulations relevant to the industry.

Many domestic and foreign scientists such as Z. E. Shershnev, S.V. Oborskaya, A.P. Gradov, I. Ansoff, A. Chandler, M. Porter, A. A. Thompson, A. J. J. Strickland study the question of the strategy formation, strategic management. However, they remain unresolved issues regarding the consideration of strategies effectiveness in their theoretical basis. As a result, there is an objective need for a detailed study of the meaning of the concept of "strategy" and the identification of factors, which have a significant effect on its content.

In this regard, the purpose of final qualifying work is to deepen the theoretical substantiating the essence of studying the iron ore market and enterprise participation in export and studying its importance and effectiveness development for the successful operation of the enterprise in the foreign market.

The Enterprise that is a basis for writing final qualifying work is PE "Prydniporvska fuel and energy company".

The object is the process of development of an export strategy for the enterprise in accordance with its foreign economic activity.

The subject is theoretical and practical principles of developing an export strategy for the enterprise to enter a foreign market in accordance with its foreign economic activity.

Purpose of final qualifying paper is to find the directions of improving export strategy of the enterprise.

Achieving this purpose leads to the following main objectives:

- Analysis of the global market in the field of mining minerals;
- Detailed analysis of financial and economic activity of PE “PPEK”;
- Analysis of PE “PPEK” export strategy;
- Evaluation of the factors influencing the export strategy of PE “PPEK”
- Selection of methods of export strategy efficiency increasing of the company in the field of mining minerals;
- Forecast and evaluation of the effectiveness of the implementation of new export strategy;

Methods of investigation: analysis (researching of enterprise activity to examine export features); synthesis (studying the financial result of company to make a conclusion); comparison (identifying the difference between standard company’s activity and forecasted after taking improvement measures); axiomatic (reference to the existing economic theories).

In the introduction to the work the current situation and actuality and value of chosen topic are explained; the object of research, subject of research, significance and aim are defined. Main tasks of this diploma work are explained. Described the main methodological instruments used in the paper.

In the first part of work made an analysis of the global market in the field of minerals and general analysis of PE “Prydniporvska fuel and energy company. Methodological approaches to the assessment of export presents the effectiveness of the enterprise.

In the second part of the work the external factors that affect the export strategy of the enterprise were studied. Also, made an analysis of the financial condition and export strategy of the enterprise.

The third part describes methods for improving the export strategy of the enterprise. Also, made an analysis and evaluation of the proposed solutions to improve the export strategy of the enterprise.

Conclusions and proposals contain the generalization of the result of this paper. Brief presentation of the results of the research. Shortly defined the most important theoretical positions that contain the formulation of the problem, and results of measures for its solution. The results of the whole diploma paper are summarized.

PART 1. GENERAL ANALYSIS OF PE “PRYDNIPORVSKA FUEL AND ENERGY COMPANY”

1.1. Analysis of the global market in the field of mining minerals

Iron is the world's most commonly used metal—steel, of which iron ore is the key ingredient, representing almost 95% of all metal used per year [19]. It is used primarily in structural engineering applications and in maritime purposes, automobiles, and general industrial applications (machinery).

Iron-rich rocks are common worldwide, but ore-grade commercial mining operations are dominated by the countries listed in the table below. The major constraint to economics for iron ore deposits is not necessarily the grade or size of the deposits, because it is not particularly hard to geologically prove enough tonnage of the rocks exist. The main constraint is the position of the iron ore relative to market, the cost of rail infrastructure to get it to market and the energy cost required to do so. Figure 1.1 shows the list of main usable iron ore producers.

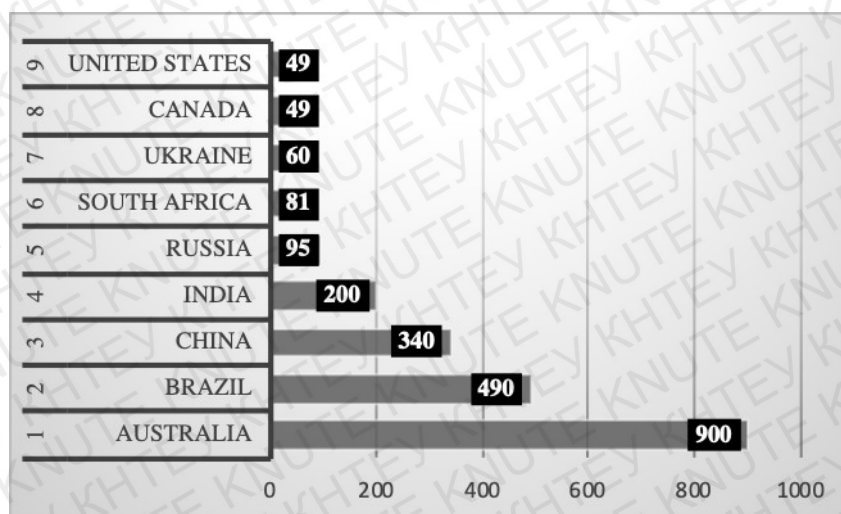


Fig.1.1. Usable iron ore production by country 2018, millions of tons

Source: developed by the author based on [39]

Mining iron ore is a high-volume, low-margin business, as the value of iron is significantly lower than base metals [20]. It is highly capital intensive, and requires significant investment in infrastructure such as rail in order to transport the ore from the

mine to a freight ship [30]. For these reasons, iron ore production is concentrated in the hands of a few major players.

World production averages two billion metric tons of raw ore annually. The world's largest producer of iron ore is the Brazilian mining corporation Vale, followed by Anglo-Australian companies Rio Tinto Group and then BHP Billiton. A further Australian supplier, Fortescue Metals Group Ltd, has helped bring Australia's production to first in the world [24].

The maximum ore flows from Australia to Japan, China, countries of Western Europe and South Korea; from Brazil ore is exported to Western Europe, Japan and South Korea, and the CIS (Russia and Ukraine) supplies ore to Eastern Europe. In addition, the export of ore from India to Japan, from Canada to the countries of Western Europe and the USA, as well as from Mauritania to the countries of Western Europe, is important [3].

Over the last 40 years, iron ore prices have been decided in closed-door negotiations between the small handful of miners and steelmakers which dominate both spot and contract markets. Traditionally, the first deal reached between these two groups sets a benchmark to be followed by the rest of the industry [31].

Ore prices are set for a year or longer during annual negotiations between major producers and consumers of iron ore. Despite the fact that the fiscal year in Japan begins on April 1, and all contracts are concluded based on this basis, and in Western Europe based on the calendar start of the year, negotiations on the Atlantic and Pacific markets are held simultaneously in November - February. As a rule, the outcome of negotiations in the European market depends on the outcome of negotiations between Japan and Australia. The Japanese market is transparent, and detailed information on contracts and prices is published in the media. The average base price is usually the price of the ore trifle of the Brazilian company CVRD (Tubarao - Rotterdam ports), determined during negotiations between this company and German steel mills. It should be noted that steelmaking companies are usually more organized in the course of annual price negotiations, and according to tradition, they are ready to offer serious encouragement in the form of a larger contract, the company that will conclude the contract first [11].

Above, statistics on the production of iron ore were considered and 9 major countries for this indicator were identified. But the percentage of exports of these countries differs in production numbers. Since countries not only export iron ore, but also use it in the domestic market. Below are statistics on iron ore exports for 2018, as well as changes over the past few years.

International sales of iron ore exported by country totaled US\$92.6 billion in 2018, declining by -26.3% since 2014 when iron ore shipments were valued at \$125.7 billion and shrinking by -0.9% from 2017 to 2018. Figure 1.2. shows the main iron ore exporters in the world [4].

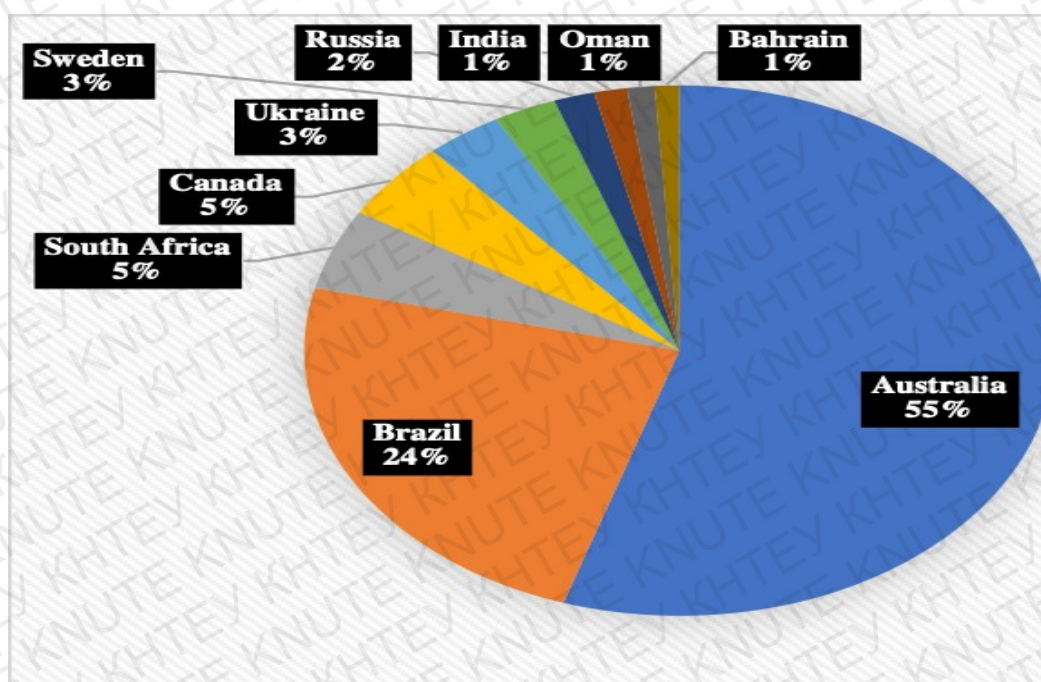


Fig.1.2. Iron ore export by country 2018

Source: developed by the author based on [32]

Among the top exporters, the fastest-growing iron ore exporters since 2014 were: China (up 4,662%), Malaysia (up 101.9%), Oman (up 72.6%), Bahrain (up 67%) and India (up 42.8%).

Those countries that posted declines in their exported iron ore sales were led by: South Africa (down -38.6%), Australia (down -32.9%), United States (down -27.1%), Iran (down -24.9%) and Brazil (down -21.7%) [50].

Globally, purchases of imported iron ore totaled US\$114.9 billion in 2018. Overall, the value of iron ore imports for all importing countries dropped by an average -22.6%

since 2014 when iron ore purchases were valued at \$148.5 billion. Year over year, the value of iron ore imports fell by -1.2% from 2017 to 2018 (Fig.1.3.).

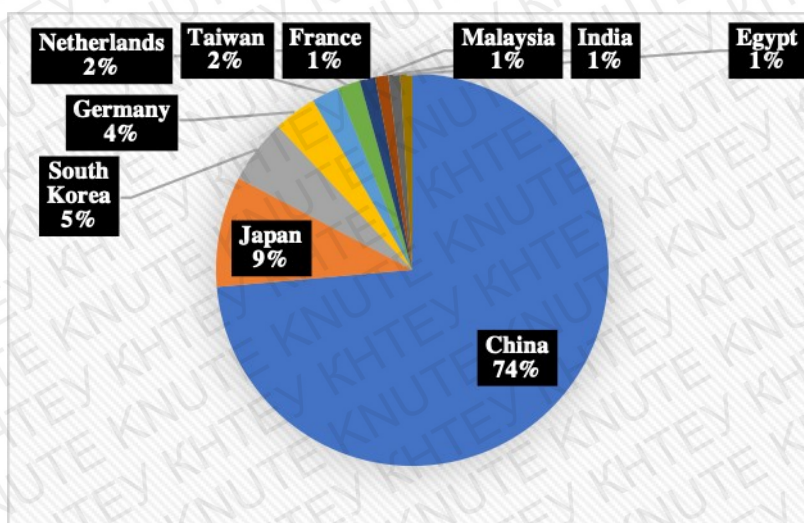


Fig. 1.3. Iron ore import by country 2018

Source: developed by the author based on [43]

Three among the above countries increased purchases of iron ore from international markets since 2014 namely Malaysia (up 116.5%), Egypt (up 91.2%) and India (up 52.5%).

Those countries that posted declines in their imported iron ore purchases were led by: United Kingdom (down -47.4%), Japan (down -41.5%), South Korea (down -36.5%) and Italy (down -30.2%) [46].

Iron ore prices have been rising steadily since the start of 2019 after a crash at a Vale mine in Brazil. The accident at the mine has led to a decline in production and has raised concerns about a shortage of this raw material in the world. Meanwhile, CRU Group experts have previously noted that prices have lost their hold on fundamental factors and will fall once supplies resume [2].

The value of raw materials on world markets directly affects Ukraine's export earnings. Against this background, economists improved its forecast for the Ukrainian economy. Analysts noted that the external environment in the first half of the year turned out to be better for Ukraine than expected, in particular due to the sharp favorable change in prices for iron ore and gas [37].

Ukraine's iron ore sector. It is instructive to consider first Ukraine's iron ore and steel production sectors together. Ukraine has the 3rd largest iron ore resources in the world and is the 9th largest producer of steel globally [44]. Possessing such significant deposits of the raw material and steel production capacity, Ukraine has also become a major global exporter of both steel and iron ore. It is the 5th largest exporter of iron ore in the world and the 6th steel exporter [1].

Mining and steel production (usually referred to as «metallurgy» in Ukraine) is even more significant by the scale of the country's economy, given the economy's small size [47], after the economic collapse in 1991 and the anemic growth since gaining independence 27 years ago.

Metallurgy has remained the primary sector of the Ukrainian economy for 15 years, until the loss of some facilities in the territories which are not under the control of the central government. After the Association Agreement with the EU in 2014 the agricultural production is growing fast, but metallurgy remains the major sector of the Ukrainian economy and no.1 industry in Ukraine [14].

Let's consider in figure 1.4. how much profit Ukraine made from 2014 to 2018 from exporting iron ore concentrate.

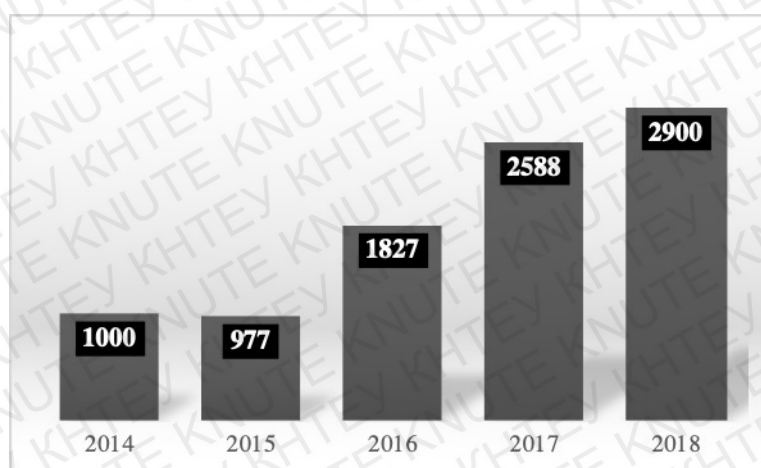


Figure 1.4. Ukraine's iron ore exports 2014-2018 in millions of US

Source: developed by the author based on [48]

When analyzing figure 1.4. we can say that overall profit was increasing over the last five years. The lowest point is in 2015, this is due to the market reorientation and Russian market loss.

When it comes to trade, iron ore and steel cumulatively were as high as 30% of Ukraine's export in 2018. Iron ore by itself constituted 3.1% of total export, or \$2.8bn of value in absolute terms. Main export destinations of iron ore from Ukraine in 2018 were China and Eastern Europe. Geography of exports varies by product though, as is shown in Figure 1.5. Non-agglomerated iron ore is much more often sold to the biggest importer China, then agglomerated ore. It is also noteworthy that the mines produce either non-agglomerated or agglomerated ore.

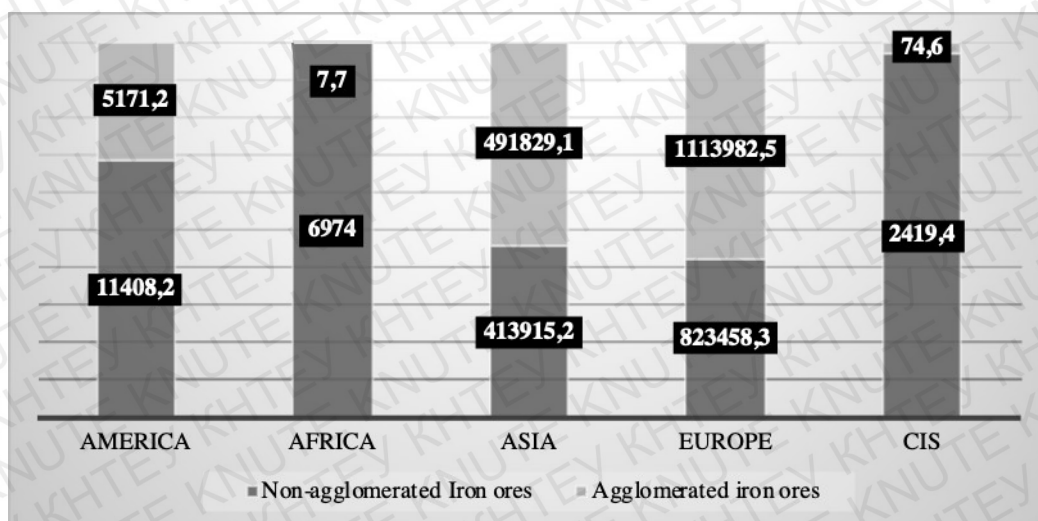


Fig. 1.5. Structure of Ukraine's iron ore export in 2018, thousand USD

Source: developed by the author based on [13]

In 2018, China remained the key iron ore market for Ukrainian steelmakers. Revenues of Ukraine's mining & metals sector from shipments amounted to \$652.6 million. The export flow however decreased by 11% compared to the previous year.

Poland ranked second by the value of imports of Ukrainian iron ore in 2018, \$383 million. Ukraine's exports of iron ore to this country increased by one third.

The main directions of export of iron ore from Ukraine are [8]:

- America with 16.7 million dollars in profit
- Europe with 1937.4 million dollars in profit
- Asia with 905.7 million dollars in profit
- Africa with 0.1 million dollars in profit
- CIS with 2.7 million dollars in profit

The significance of the iron ore sector for Ukraine's economy and society also manifests itself in the asset ownership among Ukraine's "high net worth individuals". According to the magazine Forbes' 2018 world ranking, there are currently 7 Ukrainian US dollar billionaires, and 6 out of the 7 either own or have recently owned iron ore mines. Thus, production and export of iron ore is a major source of wealth in Ukraine and should be a major source of fiscal revenue [12].

1.2. The characteristic of financial and economic activity of PE "Prydniporvska fuel and energy company"

The scope of activity of a private enterprise "Prydniprovaska fuel and energy company" (PE "PPEK") is the mining of iron ore and technical support for other areas of mining and underground mining. In addition, the company is engaged in metal processing and coating on metals and basic technological processes of mechanical engineering.

Legal address: 50000, Dnipropetrovsk region, Kryvyi Rih city, Central-Misky district, Alexander Pole's street, 5 building.

The director of the enterprise is Sergey Ivanov.

The company operates in the field of heavy industry, more precisely belongs to the steel industry. It is engaged in the extraction of iron ore from waste and exporting it abroad.

To determine the profitability of the enterprise and its financial activity, we analyzed trends in indicators over the past few years. We identified the main factors that influenced the financial performance of the enterprise.

Table 1.1

Dynamics of the financial results of the PE "PPEK", 2014-2018, millions of USD

Indicator	2014	2015	2016	2017	2018	Absolute deviation			
						2015/ 2014	2016/ 2015	2017 /2016	2018/ 2017
Total income	257,6	166,6	151,7	212,6	282	-91,05	-14,85	60,9	69,4
Net income (loss) from	56,71	18,17	33,9	51,08	66,4	-38,54	15,73	17,18	15,32

sale of products									
Other operating income	26,95	-16,73	7,93	30,95	37	43,68	24,66	23,02	6,05
Net profit	3,88	-24,46	2,88	14,7	28,3	-28,34	27,34	11,82	13,6

Source: developed by the author based on the balance sheet of the enterprise

Based on the financial analysis of the enterprise, we can conclude that:

Since 2014, the company has been operating at a loss, which we can see in table 1.1. where the growth rating is shown in negative values.

In 2015, the situation began to improve and the level of loss decreased by 600% (profit for the year 2016).

Such fluctuations are associated with a domestic crisis and a political revolution. In 2014, political power changed in Ukraine and in connection with this, Ukraine and directly Ukrainian enterprises involved in mining operations experienced a loss of the Russian market and a decrease in the sale of metals, engineering and chemical products. A significant influence was also exerted by an increase in the export of iron ore from China. This, in turn, affected the price changes in the iron ore market.

In 2017-2018, the political and economic situation in the country stabilized and, in contrast to the loss of the Russian market, relations and trade with the countries of Western Europe were improved. This has affected the growth of the financial results of the enterprise.

Then consider liquidity ratios in figure 1.6.:

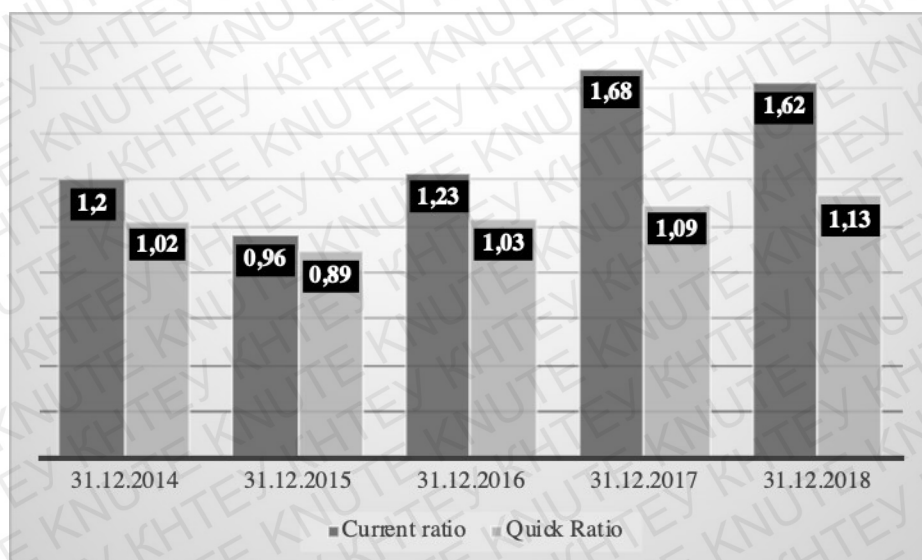


Fig.1.6. Liquidity analysis of PE “PPEK” 2014-2018

Source: developed by the author based on the financial statements of the enterprise

Net working capital for 2017 is 41,22 and for 2018 is 33,83.

Drawing conclusions from the liquidity analysis of the enterprise, we can say that:

The firm can meet its current short-term debt obligations 1.62 times over.

Analyzing the quick ratio, we can conclude that the company can pay its short-term debts without selling inventory.

In summary, the company is in a good financial position and can handle its short-term debts. All indicators with the exception of current ratios rose over the past year, which in turn indicates a healthy financial situation.

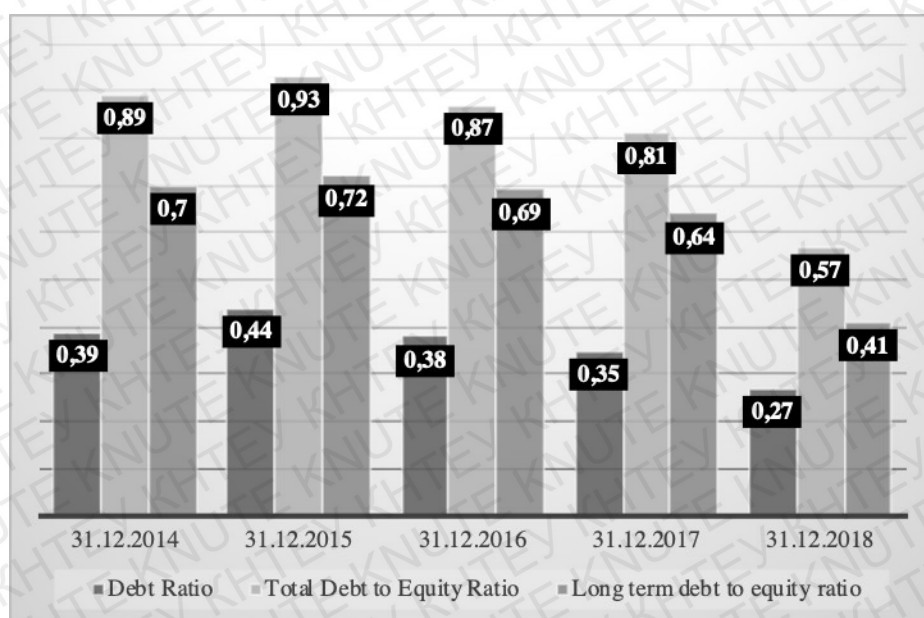


Fig. 1.7. Solvency analysis of PE “PPEK”, 2014-2018

Source: developed by the author based on the financial statements of the enterprise

After analysis of solvency ratios in figure 1.7., we can conclude that:

The analysis shows that the ratio of long-term debt to capital is low and shows that the company is solvent.

The second ratio helps in identifying how much business is funded by debt compared to equity contribution. The indicator is low, which proves that the company is solvent. It is worth noting that the indicator has improved significantly compared to the last year.

The debt to asset ratio is very important in determining the financial risk of a company. A ratio greater than 1 indicates that a significant portion of assets is funded with debt and that the company may be facing default risk. Therefore, the lower the debt to asset ratio, the safer the company [4].

Debt ratio aims to determine the proportion of total assets of the company (which includes both Current Assets and Non-Current Assets) which are financed by Debt and helps in assessing the total leverage of the business. The indicator is also low, which indicates a low financial risk on account of heavy debt obligation (in the form of Interest and Principal Payments) on the part of the business.

Table 1.2

Dynamics of the business activity indicators of PE “PPEK” 2014-2018

	2014	2015	2016	2017	2018	Growth rate			
						2015/2014	2016/2015	2017/2016	2018/2017
Assets turnover	1,09	0,86	0,8	0,87	1,12	-21%	-7%	9%	29%
Accounts receivable turnover Ratio	7,29	6,91	5,41	6,45	9	-5%	22%	19%	40%
Accounts payable turnover Ratio	1,5	1,41	1,05	1,5	1,84	-6%	26%	43%	23%
Accounts receivable turnover (days)	37,01	31,14	28,95	30,39	40,55	16%	-7%	5%	33%
Accounts payable turnover (days)	172,4	152	123,7	153,4	198	12%	19%	24%	29%
Inventory turnover	0,33	0,28	0,2	0,19	0,36	15%	29%	-5%	89%
Equity turnover	2,26	1,88	1,43	1,79	2,45	17%	24%	25%	37%

Source: developed by the author based on financial statements by the enterprise

After analyzing the business activity in table 1.2. of the enterprise, we can conclude: the turnover of assets in the enterprise is in good condition for the metallurgical industry and shows that the company uses its assets quite efficiently.

Accounts receivable turnover ratio shows that the company has the ability to pay its suppliers nine times a year, which also indicates the company's good position in the market. Also, below we can see the reflection of this indicator in days - 40.

Accounts payable turnover ratio tells how many times a year a company can pay its suppliers. The indicator shows the good condition of the company and the fact that that can pay off supplies frequently throughout the year indicate to creditor that they will be able to make regular interest and principle payments as well. In days, this indicator will be 198.

The inventory turnover tells that the company will not be able to quickly sell its assets or, in other words, the company's assets are not liquid enough, which is a normal indicator for a company in the metallurgical industry.

Equity turnover indicates that for every dollar spent, the company earns \$ 2.45, which indicates the company's profitable position and good business activity, potentially attracting investors.

Next, analyze the profitability indicators of the company over the past five years.

Indicators of profitability show the combined influence of indicators of indebtedness, the ability to pay and activity on the company's management results [29].

Profitability measures are important to company managers and owners alike. If a small business has outside investors who have put their own money into the company, the primary owner certainly has to show profitability to those equity investors. Profitability ratios show a company's overall efficiency and performance [41].

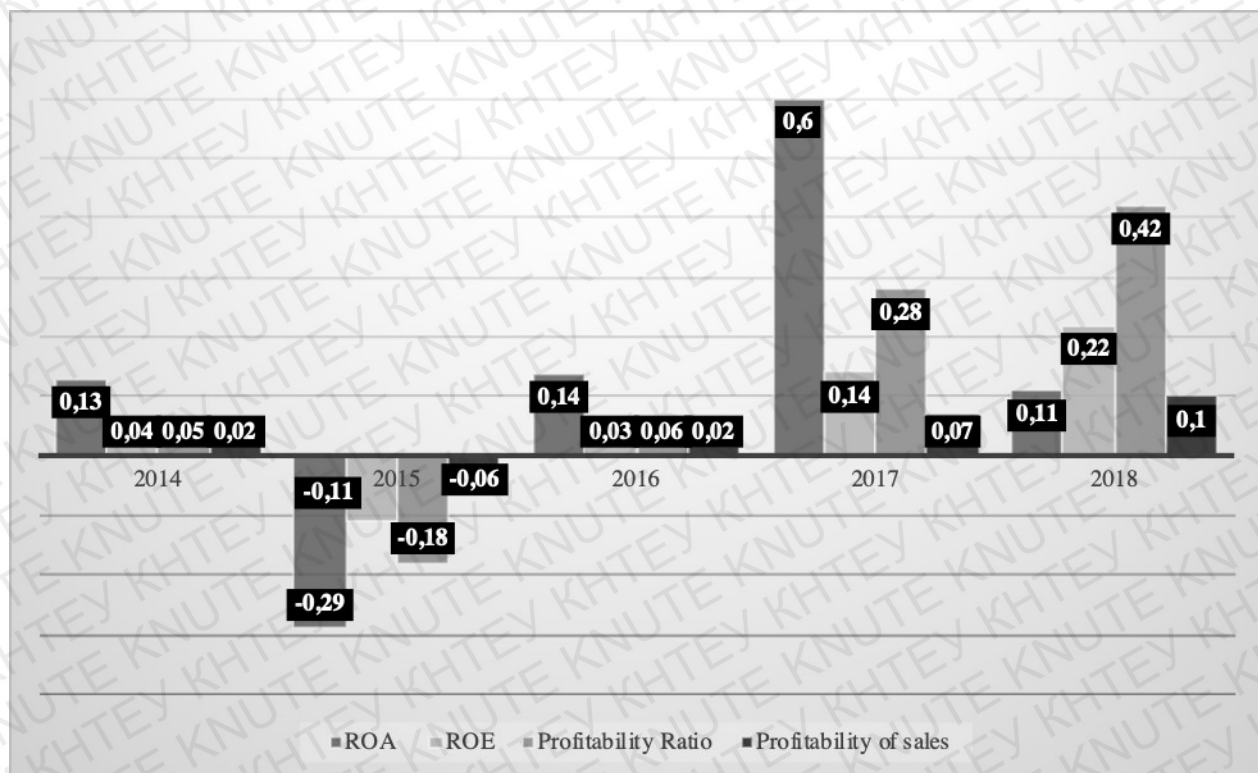


Fig. 1.8. Dynamics of profitability indicators of PE “PPEK” 2014-2018

Source: developed by the author based on financial statements by the enterprise

After analyzing profitability indicators in figure 1.8., we can conclude:

The rate of return on assets is low, but this is within the normal range for the industry in which the enterprise is located, as well as for all capital-intensive enterprises.

There is also an increase in indicators over the past year, all but the profitability ratio of products, but given the fact that overall profit has increased over this period, the company is in a good financial position.

Return on equity ratio also indicates a good financial position of the enterprise.

The profitability ratio of the enterprise also shows growth over the past two years, which in turn indicates an increase in the efficiency of the economic activity of the enterprise.

Let's consider weighting factors for PE “PPEK” in table 1.3:

Table 1.3

PE “PPEK” weighting factors for functional components

Financial Component	Gravimetric	Types of costs
---------------------	-------------	----------------

	coefficient	
Financial	0,3	Costs of products
Intellectual	0,05	Expenditure on events with advanced training
Personnel	0,1	Salary
Engineering	0,1	Depreciation
		Raw material costs
Legal Policy	0,15	Deed on deals
		Penalties
Informational	0,05	Management costs
Innovational	0,05	R&D expenses
Administration	0,2	Security costs
Total	1	-

Source: developed by the author based on the financial statements of the enterprise

According to a study of the financial condition of PE “PPEK”, we can conclude that the liquidity analysis of the company indicates that the balance of the enterprise is liquid; the balance sheet structure is satisfactory; enterprise solvent, the enterprise has enough resources to repay the current commitments. Analysis of the solvency (financial stability) of the company showed that the company is stable. Costs are covered by the profit fully and on time, accounts receivable fully cover the accounts payable.

An analysis of the business activity of the company showed that the company is solvent, competitive, commitments are timely and fully implemented. Analysis profitability of the enterprise showed that the enterprise is profitable in all articles balance.

CONCLUSIONS TO PART 1

In the part 1 of the work, were analyzed the global iron ore market and the general characteristics of the enterprise under study (“Prydniporvska fuel and energy company”).

The main iron ore market players were identified:

1. Australia
2. Brazil
3. China
7. Ukraine

Ukraine takes the seventh place in the production of the usable iron ore and has the 3rd largest iron ore resources in the world and is the 9th largest producer of steel globally. Possessing such significant deposits of the raw material and steel production capacity, Ukraine has also become a major global exporter of both steel and iron ore. It is the 5th largest exporter of iron ore in the world and the 6th steel exporter.

Thus, production and export of iron ore is a major source of wealth in Ukraine and should be a major source of fiscal revenue.

We determined main exporters of the iron ore in the world: Australia (55%), Brazil (24%), South Africa (5%). Then, were identified main importers of the iron ore in the world: China (74%), Japan (9%), South Korea (5%).

We analyzed that when it comes to trade, iron ore and steel cumulatively were as high as 30% of Ukraine’s export in 2018. Iron ore by itself constituted 3.1% of total export, or \$2.8bn of value in absolute terms. Main export destinations of iron ore from Ukraine in 2018 were China and Eastern Europe.

The main directions of export of iron ore from Ukraine are:

- America with 16.7 million dollars in profit
- Europe with 1937.4 million dollars in profit
- Asia with 905.7 million dollars in profit

In the section 1.2 were analyzed characteristic of financial and economic activity of PE “PPEK”.

The scope of activity of a private enterprise:

“Prydniprovskya fuel and energy company” (PE “PPEK”) is the mining of iron ore and technical support for other areas of mining and underground mining. In addition, the company is engaged in metal processing and coating on metals and basic technological processes of mechanical engineering.

Based on the financial analysis of the enterprise, we can conclude that:

Since 2014, the company has been operating at a loss, which can be seen in table 1.1 where the growth rating is shown in negative values.

In 2015, the situation began to improve and the level of loss decreased by 600% (profit for the year 2016).

Such fluctuations are associated with a domestic crisis and a political revolution. In 2014, political power changed in Ukraine and in connection with this, Ukraine and directly Ukrainian enterprises involved in mining operations experienced a loss of the Russian market and a decrease in the sale of metals, engineering and chemical products.

Drawing conclusions from the liquidity analysis of the enterprise, we can say that:

The firm can meet its current short-term debt obligations 1.62 times over.

After analyzing the quick ratio, we can conclude that the company can pay its short-term debts without selling inventory.

After analyzing the business activity of the enterprise, we can conclude: the turnover of assets in the enterprise is in good condition for the metallurgical industry and shows that the company uses its assets quite efficiently.

In summary, the company is in a good financial position and can handle its short-term debts. All indicators with the exception of current ratios rose over the past year, which in turn indicates a healthy financial situation.

There is also an increase in indicators over the past year, all but the profitability ratio of products, but given the fact that overall profit has increased over this period, the company is in a good financial position.

PART 2. ANALYSIS AND ASSESSMENT OF PE "PREDNYPROVSKA FUEL AND ENERGY COMPANY" EXPORT STRATEGY

2.1. Analysis of the enterprise's export strategy

In the modern world, given the recent geopolitical, economic, climatic and other processes, is in extreme dynamics and undergoes significant transformations. The openness of the markets of individual countries is accompanied by export quotas, the need to comply with high technical requirements for products, increase in customs tariffs.

The attractiveness of the country's market for exports is high competition, including price. In these circumstances, the success of Ukrainian companies and their associates in international markets will depend on the uniqueness of their export strategies, the availability of resources for their development and implementation [35].

Table 2.1

Dynamics of the product structure of the export of PE "PPEK" 2014-2018, millions of USD

	2014	2015	2016	2017	2018	Absolute deviation			
						2015/2014	2016/2015	2017/2016	2018/2017
Finished products	23,3	15,5	66,6	86,4	109,9	-7,8	51,1	19,8	23,5
Semi-finished products	105,8	68	11,9	25,5	44	-37,8	-56,1	13,6	18,5
Iron ore products	37,5	20,1	17,2	22,3	26,6	-17,4	-2,9	5,1	4,3
Coal Concentrate	3	3,2	2,4	1,7	1,5	0,2	-0,8	-0,7	-0,2
Coke	8,2	3,6	3	8,1	11,2	-4,6	-0,6	5,1	3,1
Total	177,8	110,3	101,1	144	193,1	-67,5	-9,2	42,9	49,1

Source: developed by the author based on the financial statements of the enterprise

Analyzing the export product structure of the enterprise in table 2.1., we can see in what proportion goods are exported. Based on the analysis made, the company exports the main types of manufactured products. Despite the fact the company receives the largest share of revenue from finished products, iron ore concentrate is the largest product in terms of volume. It is also worth noting that finished products were not the main

source of export revenue in 2014, but the situation changed during the analysis. This is due to the reorientation of the export strategy and due to the loss of the Russian market and the opening of the European market to Ukraine. Despite the fact that even before the deterioration of market relations with Russia, the company was stable in trading with European countries, the situation after 2014 significantly influenced changes in export directions.

Significant changes in terms of total revenue from the company's exports are also noticeable. After the loss of the Russian market, restructuring of the export strategy took some time, which can be observed in the distribution of the market relative to the place of export below in the analysis, and in reflecting the total revenue from exports. The loss of business partners in the temporarily uncontrolled territory of the Donetsk region also affected the decrease in total revenue. This has led to a decrease in mineral extraction and, as a result, to a decrease in the quantity of exports.

Drawing a conclusion, we can say that the situation as a whole improved during the analyzed period, even taking into account the loss in profit in 2015 and 2016. It is too early to draw final conclusions since only time will show how the situation will develop in the future.

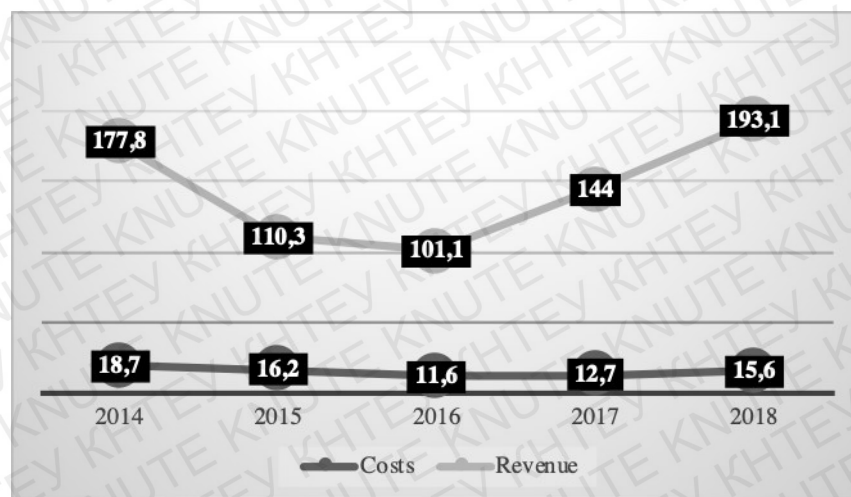


Fig. 2.1. Dynamics of revenue and costs correlation, 2014-2018

Source: developed by the author based on balance sheet of the enterprise

Analyzing the correlation of cost to revenue in figure 2.1, we can conclude that export costs an average of about 10% percent of revenue. Costs do not take into account the cost of goods, but only the costs of organizing and delivering the goods to the buyer.

Analyzing the indicators over a period of 5 years, we can say that the efficiency increased from 2014 to 2018. The decline in 2015 is also noticeable when the ratio of costs to revenue increased compared to other years, which is also associated with the restructuring of exports.

Table 2.2

Dynamics of the export geographic structure of the PE “PPEK” 2014-2018

	2014		2015		2016		2017		2018	
	Millions USD	% Revenue	Millions USD	% Revenue	Millions USD	% Revenue	Millions USD	% Revenue	Millions USD	% Revenue
Europe	59,7	28,0	43,7	33,0	49,7	36,0	71,7	36,0	90,3	34,0
Mid. East Africa	37,9	18,0	25,3	19,0	20,7	15,0	32,7	16,0	49,6	18,0
CIS (except Ukraine)	36,3	17,0	20,8	15,0	12,9	9,0	17,3	9,0	17,1	6,0
Southeast Asia	33,7	16,0	14,6	11,0	9,0	7,0	11,2	6,0	15,9	6,0
North America	8,2	4,0	4,4	3,0	7,0	5,0	9,7	5,0	17,1	6,0
Others regions	2,1	1,0	1,4	1,0	1,7	1,0	1,3	1,0	3,1	1,0
Total	177,8	84,0	110,3	82,0	101,1	73,0	144,0	73,0	193,1	71,0

Source: developed by the author based on the financial statements of the enterprise

Analyzing the geographic structure of exports in table 2.2., we can conclude the main export destinations are Europe and the Middle East, in particular China. On the second place are the CIS countries and other regions.

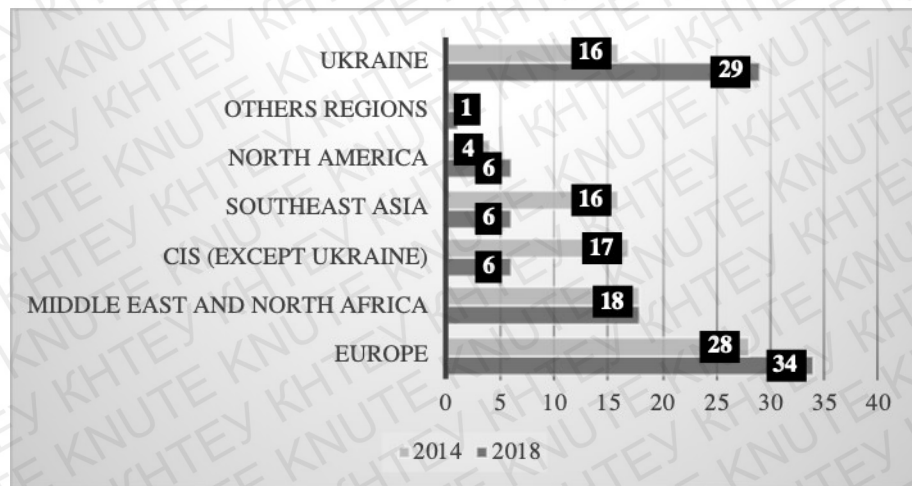


Fig. 2.2. Percentage of revenue by countries 2014 and 2018 years

Source: developed by the author based on the financial statements of the enterprise

From 2014 to 2018, major part of the revenue comes from Europe, despite the fact that in percentage terms there is only a slight increase (fig.2.2.). This shows an increase in the efficiency of trade with the countries of the European Union.

Looking closer at 2018 and 2014, we can see how income from the CIS countries has significantly decreased due to sanctions against Russia and a general deterioration in trade relations. It is also evident that over 5 years trade relations with the countries of the Middle East have not changed.

We can notice that the sale of goods in Ukraine has almost doubled. Which also shows the impact of the loss of the Russian market.

Today, the export strategy of the enterprise operates on the basis of B2B. This is right approach for a metallurgical type enterprise.

Enterprises oriented to the B2B markets, having a narrow range of products and limited opportunities for product diversification, are implementing export strategies that aim at the “breadth” of development [23].

Such strategies are geographic diversification and acquisitions of competitors.

Since the analyzed enterprise is small in size and works closely with a large holding, its main export strategy is geographic diversification.

Drawing a conclusion from the analysis of the geographic structure of exports, we can say that the enterprise has entered all the necessary markets and now it makes sense to develop internal factors influencing the strategy. Including development:

- production potential

- innovation potential
- saving resources

The second stage of the study is the calculation of the total score the level of export potential utilization. For calculation the significance matrix of the export items was used potential taking into account the life cycle of the market, which allows to determine how important each of the subsystems are at each stage of the life cycle of an industrial enterprise on the example of PE “PPEK”.

To calculate the level of export potential was the system of weighted estimates that are calculated is used by multiplying each evaluation subsystem by its importance [16]. The sum of the scores for all the subsystems gives an overall estimate of the level utilizing the export potential of the enterprise to be increase as you get closer to 1000 points (table 2.3).

Table 2.3

Matrix of significance of elements of the export strategy of PE “PPEK”

	Elements of a complex system of marketing potential								
	System supply activities			Level system sales management			Support system marketing activities		
Stages of life cycle	Information subsystem software	Personnel subsystem software	Commodity subsystem software	The programming subsystem	Organization subsystem marketing activities	Control subsystem and coordination	Marketing subsystem mediated communications influence	Marketing subsystem communications direct influence	The service subsystem sales support
Formation	30	10	5	10	5	5	25	5	5
Growth	10	15	15	15	15	10	10	10	10
Deceleration	5	5	10	10	10	15	15	15	15
Stabilization	5	5	10	10	10	15	15	15	15
Decline	5	5	5	5	10	15	15	20	20

Source: developed by the author based on the financial statements of the enterprise

For the Table 2.4 the minimum rating is 1, the maximum rating is 10. Next step is to estimate the export strategy utilization. It is necessary to understand how much of the export potential uses the company.

Table 2.4

Assessment of the export strategy utilization level at PE "PPEK"

Supply potential subsystems	Rating using each subsystems	Significance items marketing potential	Weighted rating
Information support subsystem	6	10	60
Personnel subsystem	7	15	105
Commodity subsystem	6	15	90
Programming subsystem	6	15	90
Marketing subsystem	8	15	120
Control and coordination subsystem	9	10	90
Marketing communications subsystem indirect influence	9	10	90
Marketing communications subsystem direct influence	9	10	90
Sales Support Subsystem	8	10	80
Overall assessment			815

Source: developed by the author based on the financial statements of the enterprise

Analyzing table 2.4, we can conclude that the company uses its export potential by 81.5%. The problem areas are the software subsystem, the subsystem of commodity support and information support. All of these indicators are internal. The reason for the imperfection of these indicators is the restructuring of the domestic market and the establishment of new types of cooperation.

Let's consider few more export indicators for the enterprise in table 2.5.:

Table 2.5

Dynamics of the export indicator for the PE "PPEK", 2014-2018

№ i/o	Indicator	2014	2015	2016	2017	2018	Growth rate, %
							2018/2014
1	Net income from sale (export), millions of US dollars	177,80	110,30	101,10	144,00	193,10	108,61
2	Total cost	153,20	102,20	90,05	125,00	162,50	106,07

	(production), millions of US dollars						
3	Total export costs, millions of US dollars	13,20	6,19	8,67	10,01	10,77	81,59
3.1	Transportation costs to the border, millions of US dollars	7,10	4,10	5,50	5,89	5,99	84,37
3.2	Insurance costs, millions of US dollars	2,40	0,89	1,05	1,25	1,79	74,58
3.3	Cost of loading, millions of US dollars	3,70	1,20	2,12	2,87	2,99	80,81
4	Financial result, millions of US dollars	11,40	1,91	2,38	8,99	19,83	173,95
5	Economic effect of export operation, millions of US dollars	9,35	1,57	1,95	7,37	16,26	173,95
6	Efficiency ratio						
6.1	Profitability of sale, %	5,26	1,42	1,93	5,12	8,42	160,16
6.2	Profitability of total cost, %	5,62	1,44	1,98	5,46	9,38	167,05

Source: developed by the author based on the financial statements of the enterprise

The influence of external factors on export development should also be taken into account. In order to manage export processes more effectively, it is necessary to respond on time and correctly to changes in existing markets; anticipate changes in the policies and economies of the importing country; compare the results achieved with the plan, understand the causes of deviations and respond to market changes in time based on continuous monitoring of export activities.

The goals the company now faces regarding the export strategy are to increase the volume of products and improve cooperation with national and foreign enterprises. It also makes sense to increase exports in countries with the highest returns and reduce where there is less profit.

2.2 Assessment of the factors influencing the export strategy of PE “Prydniporvska fuel and energy company”

To analyze the macro environment, a PEST scheme can be used to divide it into political, economic, social and technological environments (a name formed from the first letters of the listed environments). Recently, in connection with the acquisition of a significant impact of the environmental conservation movement, the environment has also been separated separately, thus extending the scheme to PESTE [35].

The key drivers of change are the factors that have a negative impact and a negative tendency, or those that have a positive and the most positive influence and tendency. The results of the analysis are given below in table 2.6.

Table 2.6

Political factors influence analysis for PE “PPEK”

Factor	Impact description	Influence	Key indicator
1	2	3	4
Foreign exchange uncertainty - customs union or integration with the EU	Restrictions on foreign investment, possible sanctions on exports of products, both MPP and metal from Europe, CIS	-1	+
State regulation of the value of natural monopolies	Low GDP growth, budget deficits can lead to higher state fees for using natural monopolies	-1	+

Continued table 2.6

1	2	3	4
State regulation of economy (ban on export of SAM in India, stimulation of economy in China)	Increasing demand for MPP in the international market	1	
Holding large-scale international competitions and events in Ukraine: EURO-2012, Eurobasket-2015	Construction of new facilities for events, popularization of the country in the world causes the development of tourism and construction of new infrastructure, which stimulates domestic demand for metal products and MPP	1	
Changes in currency legislation	Reducing demand stimulation through more flexible payment terms	-1	

Source: developed by the author

Drawing conclusions from the table 2.6., we can say that mainly the impact is negative. Three out of 5 factors negatively affect the enterprise. The other two factors are not stable. The situation in the world market may change at any time, so the conclusion remains negative.

Table 2.7

Economic factors influence analysis for PE “PPEK”

Factor	Impact description	Influence	Key indicator
1	2	3	4
GDP dynamics	Low growth rates of the country cause export orientation of the industry, low level of infrastructure development in the future may lead to an increase in domestic consumption	-1	
Energy costs	Production is quite energy intensive. Development of the Black Sea shelf, transition of energy to coal, potential projects of development of mine methane and shale gas can increase energy independence of the country and industry	-1	
The SAM proposal	The market is oligopolistic (70% controlled by three players), supply and price controlled	2	+

Continued Table 2.7

1	2	3	4
Deficiency of the wagon park	Increase in tariffs for transportation of products, decrease in competitiveness in foreign markets	-1	+
Shipping costs by sea are increasing	decrease in the competitiveness of domestic products in the Chinese market	-1	+
Production capacity	Download about 80%. Excess supply will help to lower prices	0	

Source: developed by the author

For Ukraine, economic factors (table 2.7.) have a negative impact. For an individual enterprise, key factors indicate a positive impact. The increase in China's demand in connection with the restructuring of the economy may favorably affect the export of iron ore. It is also beneficial that the market is controlled by three companies. Significant price fluctuations on their part are not expected.

Table 2.8

Social factors influence analysis for PE "PPEK"

Factor	Impact description	Influence	Key indicator
Population aging	Shortage of qualified personnel and increase of tax pressure on enterprises is possible	0	
Staff qualification	The use of more sophisticated technology leads to a shortage of skilled personnel, and an increase in the cost of pay, investment in training	0	
Changes in basic values: ecology, mobility of workers, urbanization	Increased investment in the development of corporate presence regions, in corporate social responsibility	-1	
Globalization	Workforce mobility will increase and may increase the cost of retaining skilled workers	0	

Source: developed by the author

Regarding social factors from table 2.8., there have been no major changes in a few years. Social factors are stably negative in Ukraine, only with the advent of new political power in 2019 changes will begin. These changes will take at least 10-15 years.

Consequently, the social factor has a negative impact on all industries and the economy as a whole, not only this enterprise and industry.

Table 2.9

Technological factors influence analysis for PE “PPEK”

Factor	Impact description	Influence	Key indicator
Alternatives to metal	Development of technologies for the production of plastics and non-ferrous structural materials in the future may lead to a decrease in market volumes	0	
Development of oxidized ore enrichment technologies (now stored as waste)	Significant reserves of oxidized quartzite make it possible to potentially increase production and reduce environmental payments	1	+
Product quality requirements	Compliance with requirements increases sales, tougher requirements will require significant investment	1	
Aging technology and technics	New businesses are less energy and labor intensive, need to invest in upgrading and upgrading equipment	0	
Development and availability of energy-saving technologies	Ability to reduce energy consumption of products and production costs	1	+

Source: developed by the author

Technological factors (table 2.9.) do not significantly affect the enterprise and industry as a whole. The development of technological factors can well affect the development of the country's economy and the improvement of the financial condition of the enterprise. They can also negatively affect the environment if they are not properly approached. Mostly technological factors show the situation today, but key factors have a positive effect in the end.

Analyzing environmental factors below in table 2.10., we can conclude that in the current state of the economy, they can negatively affect the production of iron ore.

At the same time, they are closely related to technological factors and changes in the process of iron ore mining in accordance with the new standards can have a beneficial effect on society as a whole, which is also a lot of important factor.

Table 2.10

Environmental factor influence analysis for PE “PPEK”

Factor	Impact description	Influence	Key indicator
More stringent requirements of environmental legislation of Ukraine	The need to invest in reducing the negative impact on the environment, further globalization will increase the impact	0	
More stringent requirements of environmental legislation of consumer countries	Reduction or closure of metallurgical industries that do not meet environmental requirements, as a consequence, decrease in market capacity, increase in quality requirements	0	

Source: developed by the author

Now research the factors that affect export performance on PE “PPEK”

The dynamics of export of goods means the development of exports in the reporting year compared to the previous or earlier period. The analysis of export dynamics reveals changes in the value and volume of exports of goods at unchanged prices and prices for purchased goods. In the reporting year compared with the previous or more previous year and changes that have taken place during this time in the quantitative and value structure of exports. Exports, physical volume and price indices are calculated for this purpose.

$$I_{pq} = \frac{\sum p_1 q_1}{\sum p_0 q_0} \quad (2.1)$$

where p_1 , p_0 - price, q_1 , q_0 - quantity

The cost index shows how (how many times) the volume of activity this year has changed compared to the baseline.

$$I_{pq} = \frac{\sum p_1 q_1}{\sum p_0 q_0} \quad (2.2)$$

The price index shows how many times the volume of activity of an enterprise has changed in the reporting period compared to the basic one due to the change in prices. Changes in the levels of prices are measured using a scale called a price index. This is the most useful device for measuring change in the price level [22].

$$\text{Price Index} = \frac{\text{Price in the reporting period}}{\text{Price in the base period}} \quad (2.3)$$

The physical volume index shows how many times this year's activity volumes have changed compared to the baseline ones, under the influence of the physical volume factor. Import data for the years studied are grouped by goods in the analytical tables.

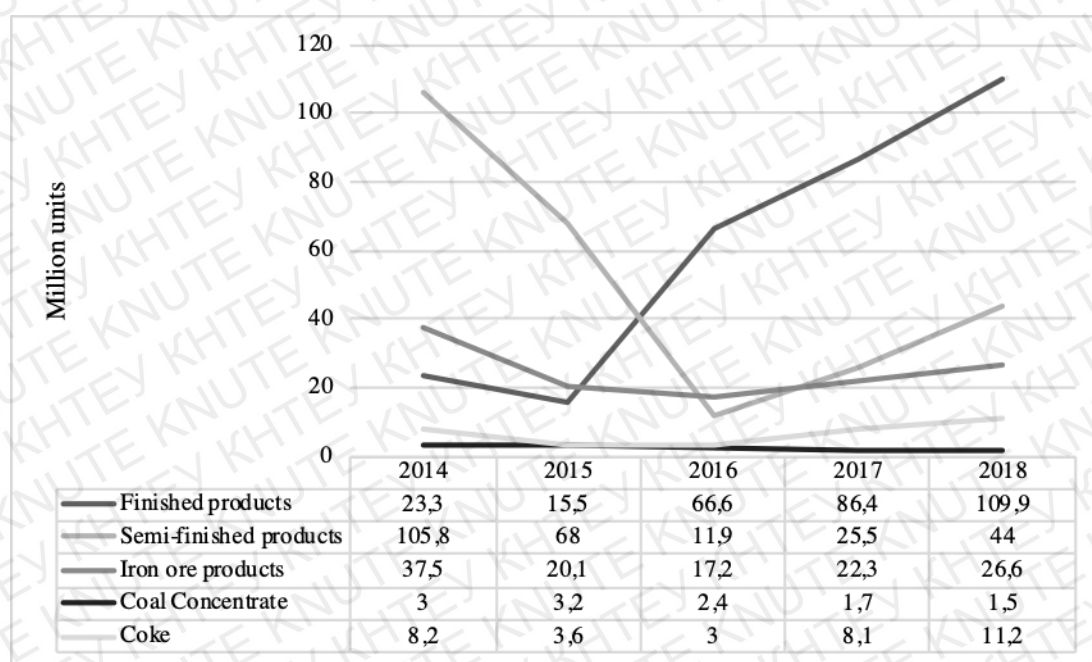


Fig. 2.3. Diagram of commodity structure of exports by PE "PPEK" in 2014 – 2018

Source: developed by the author based on the financial statement of the enterprise

Drawing conclusion from the figure 2.3. above we can say that the enterprise significantly increased the amount of finished products export during the period of analysis. Moreover, there is a significant decrease in semi-finished export amount. These changes are connected with the export market reorientation. Also, slight increase in iron ore products is noticeable.

In the table 2.11 can be seen significant changes in the revenue of the enterprise. It shows that the enterprise found the appropriate ratio between the number of exported products. These indices will show to what extent and where the value and volume of exports have changed. According to the table 2.11 and the diagram of commodity structure of exports (Fig. 2.3), we determine the tendency of export development of a group of goods (as a result) by value.

Table 2.11

Dynamics of the commodity structure of exports of the PE "PPEK" during 2016 - 2018

№	Name of goods/products	2016			2017			2018		
		Q, thousands of units	P (average), \$	TR	Q, thousands of units	P (average), \$	TR	Q, thousands of units	P (average), \$	TR
1	Finished products	120000	0,56	66,6	132000	0,65	86,4	140520	0,78	109,9
2	Semi-finished products	2001	5,95	11,9	3600	7,08	25,5	4250	10,35	44
3	Iron ore products	1250	13,76	17,2	1420	15,7	22,3	1820	14,62	26,6
4	Coal Concentrate	900	2,67	2,4	500	3,4	1,7	532	2,82	1,5
5	Coke	1200	2,5	3	3050	2,66	8,1	3126	3,58	11,2
6	Total	125351	25,44	101,1	140570	29,49	144	150248	32,15	193,1

Source: developed by the author based on the financial statement of the enterprise

Let's find out how the volume of exports changed at constant prices (physical volume). Let's determine the extent to which the factors of quantity and price influence the increase in the value of exports of goods of this group.

Impact measure: for the period 2017/2016 increased by \$ 272,278 (331796 - 59518 = 272,278); for the period 2018/2017 increased by \$ 447,797 thousand (779593 - 331796 = 447 797);

Let's calculate indices for the 2017/2016 and 2018/2017 periods.

$$\frac{132000}{120000} = 1,1 \quad (2.4) \quad \frac{140520}{109900} = 1,278 \quad (2.5)$$

$$\frac{4250}{2001} = 2,124 \quad (2.6)$$

$$\frac{3126}{1200} = 2,605 \quad (2.7)$$

(2.8)

(2.9)

The calculated values of activity indices PE “PPEK” for the period 2017/2016 and the period 2018/2017 are recorded in Table 2.12. On the basis of the table above (see table 2.11), has been created a table of indices of value (table 2.12), physical volume and price.

Table 2.12

Calculation of activity index system to PE “PPEK” during 2016-2018

№	Indicator	Period		
		2017/2016	2018/2017	
		In fact	In fact	Deviation, +/-
1	Cost Index	1,424	1,341	-0,083
2	Price Index	1,169	1,201	0,032
3	Physical volume index	1,218	1,116	-0,102

Source: developed by the author based on the financial statement

The determination of the influence factors on the export activity of PE "PPEK" is in Table. 2.13.

Table 2.13

Impact factors on the export activity of PE “PPEK” during 2016-2018

Indicator	Period		
	2017/2016	2018/2017	
	In fact	In fact	Deviation, +/-
Overall change in export			
Total, millions of USD	42,9	49,1	6,2
Including:			
Due to the physical volume, millions of USD	22,07	16,77	-5,29
As a percentage of the total change, %	51,44	34,16	-17,28
Due to the change in price, millions of USD	20,83	32,33	11,49

As a percentage of the total change, %	48,56	65,84	17,28
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Source: developed by the author based on the financial statement

Conclusion on the price index from the table 2.13.:

\$ 331796K US - Export value for 2017

\$ 270152K US - Result of exports of 2017 exports at 2016 Prices

779593 thousand USD - Export Value for 2018

\$ 629703K US - Resulting in exports of quantity of goods for 2018 at 2017 prices

Comparison of these amounts makes it possible to determine how the change in the prices of the value of export of goods affected. Export prices for the period 2017/2016 - increased by 23%, as a result of increased export value due to the increase of the price by \$ 61644 thousand USD ($331796 - 270152 = 61644$). Export prices for the period 2018/2017 increased by 24%, resulting in an increase in the value of exports by increasing the price by \$ 149,890 thousand USD ($779593 - 629703 = 149890$).

By physical volume index:

We can see an increase in exports due to changes in the value of the volume at constant prices, we have: $270152 - 59518 = 210634$ thousand USD - for the period 2017/2016

$629703 - 331796 = \$ 297907$ K US - for the period 2018/2017, so the physical volume increased at the expense of price.

Cost for the period 2017/2016 - increased at the expense of the price by 23% or by USD 61644 thousand. Physical volume, which increased by 45% or by USD 210634 thousand. Cost for the period 2018/2017 - increased at the expense of the price by 24% or by USD 149890 thousand. And physical volume, which increased by 90% or by USD 297,907 thousand.

Thus, the most influential factor for foreign economic activity of PE "PPEK" during 2016 - 2018 was the physical volume of sales, which caused a total change of foreign economic activity by 77.3% in 2017 and 61.5% in 2018.

CONCLUSION TO PART 2

In the second part of the paper were analyzed

Based on the analysis made, the company exports the main types of manufactured products. Despite the fact the company receives the largest share of revenue from finished products, iron ore concentrate is the largest product in terms of volume. It is also worth noting that finished products were not the main source of export revenue in 2014, but the situation changed during the analysis.

Drawing a conclusion, we can say that the situation as a whole improved during the analyzed period, even taking into account the loss in profit in 2015 and 2016.

Analyzing the geographic structure of exports, we can conclude the main export destinations are Europe and the Middle East, in particular China. On the second place are the CIS countries and other regions.

From 2014 to 2018, major part of the revenue comes from Europe, despite the fact that in percentage terms there is only a slight increase. This shows an increase in the efficiency of trade with the countries of the European Union.

The goals the company now faces regarding the export strategy are to increase the volume of products and improve cooperation with national and foreign enterprises. It also makes sense to increase exports in countries with the highest returns and reduce where there is less profit.

Then in section 2.2. PESTE analysis showed which factors influence the company and its export strategy.

Analysis of the political factors showed that mainly the impact is negative. Three out of 5 factors negatively affect the enterprise. The other two factors are not stable. The situation in the world market may change at any time, so the conclusion remains negative.

Economic factors showed that the increase in China's demand in connection with the restructuring of the economy may favorably affect the export of iron ore. It is also beneficial that the market is controlled by three companies. Significant price fluctuations on their part are not expected.

Regarding social factors, there have been no major changes in a few years. Social factors are stably negative in Ukraine, only with the advent of new political power in 2019 changes will begin.

Technological factors do not significantly affect the enterprise and industry as a whole. The development of technological factors can well affect the development of the country's economy and the improvement of the financial condition of the enterprise.

Analyzing environmental factors, we can conclude that in the current state of the economy, they can negatively affect the production of iron ore.

Then we analyzed few export indices which showed that, the most influential factor for foreign economic activity of PE "PPEK" during 2016 - 2018 was the physical volume of sales, which caused a total change of foreign economic activity by 77.3% in 2017 and 61.5% in 2018.

PART 3. EFFICIENCY IMPROVEMENT OF FORMATION AND REALIZATION OF THE EXPORT STRATEGY OF PE “PRYDNIPORVSKA FUEL AND ENERGY COMPANY”

3.1. Methods of export strategy efficiency increasing of the company in the field of mining minerals

Having done the analysis in section two, we can conclude that the export strategy of the company is in good condition. Significant changes to the strategy are not required, but there are a few things worth working on.

The following problem areas can be highlighted:

- it is worth paying attention to ways to increase sales of products
- It is also worth redistributing product exports to countries with the highest percentage of income
- the collateral product system requires minor improvements

All these problems are interconnected and solving the main problem will facilitate the solution of the rest.

The main export problem is the insufficiently effective sales of products.

There are two ways to increase the volume of production: the extensive and intensive way.

The extensive development path is a way to increase production based on quantitative factors of economic growth by attracting additional labor (the same qualifications), increasing volumes of raw materials and materials, capital investments, building new production enterprises (the same technical level), and expanding sown areas [21].

The intensive type of economic growth is characterized by an increase in the scale of output, which is based on the widespread use of more efficient and qualitatively advanced factors of production. The growth of production, as a rule, is ensured through the use of more advanced technology, advanced technologies, scientific advances, more economical resources, and advanced training of workers. Due to these factors, improving product quality, increasing labor productivity, resource conservation, etc. [27].

To change the current export strategy of the enterprise, an intensive way to increase production volume is suitable. Comparing these two methods, it can be seen that for the implementation of an extensive way to increase the volume, additional capital investments will be required, which will negatively affect the net income indicators. Nevertheless, the use of an intensive path also entails capital investments, but theoretically, estimates will be much less than with an extensive path [40].

Since the solution to this problem is closely related to the improvement of the commodity supply system, which in turn is one of the important factors of production.

When choosing an intensive improvement of the export strategy of an enterprise, such problems we can highlight:

- insufficient use of advanced technologies
- insufficient saving on resources
- staff development

At present, few ways to improve the efficiency of iron ore mining can be identified.

Today, automation is important not only for the mining industry. With a decrease in the workforce and the class of workers, changes are needed in this area. Autonomous trucks are becoming an ever more frequent presence around mines, with market leaders Cat and Komatsu introducing their automated haulage systems in the last two years [33].

The next step in mining automation could even be mines with no miners, after Rio Tinto unveiled their plans for a \$ 2.2B ‘intelligent mine’ packed with driverless trains, trucks and robotics [21].

To become more competitive, attention must be paid to the latest trends in iron ore mining. Using the example of PE PPEK, the use of a geographic information system and artificial intelligence can be introduced. Also, these technologies will help increase iron ore production.

Geographic information systems (GIS) are an integral tool that allows a deeper look at how geographic relationships influence the world around us. With the help of GIS, miners are able to solve real-life issues where location and accessibility are critical [36].

Artificial intelligence (AI) now leads the decision-making at insight-driven firms. Implementing artificial intelligence technology generates day-to-day data in half the time than what has been used previously in the field [5].

Here are some ways the latest technology in artificial intelligence impacts the working mine:

- Mineral processing and exploration: Companies can find minerals more easily by using high-performance AI technology.
- Autonomous vehicles and drillers: For more than eight years, firms across the globe have used autonomous machines in their pit-to-pit operations. Self-driving trucks can easily navigate through narrow tunnels with AI. Now, drilling systems are also simplified with a single operator that controls several drill rigs at once [34].

This is just another step towards optimal industry efficiency. As the mining industry attempts to reduce costs and lessen its environmental impact, using mining equipment like AI helps to ensure safety and reliability for both miners and the land that mines use [10].

On the example of the analyzed enterprise, it will be wise to introduce automation, GIS and AI. Significant investment will be required, but they will give their profits over the long term. It is necessary to establish cooperation with manufacturers of the necessary equipment.

The second step that will help improve the export strategy and the overall productivity of the enterprise is saving resources.

Due to the fact that iron ore, which is located on the surface, depletes its reserves, more energy is required for the extraction of ore. This affects the cost of resources. Therefore, one of the important steps is to reduce the cost of resources. Energy costs can represent up to 30 percent of a mining company's overhead costs. Between fuel for heavy machinery such as trucks to haul the raw material from the mine to the equipment used to dig deep into the earth, mines are energy-intensive projects [7].

In fact, mining companies that made the switch to renewable energies have seen up to 40-percent reductions in their energy bills, according to Deloitte. When those costs

represent 30 percent—nearly a third—of your overall operations costs, those are enormous savings [21].

One of the drawbacks of PE “PPEK” is that the company does not pay much attention to finding new foreign markets and expanding existing ones.

An important point in developing an international commodity strategy is deciding whether it is necessary for an enterprise to develop a standard product one for all markets or to adapt the product to the specific requirements and characteristics of each market [9].

Specific goods the enterprise can sell in some markets very well and very poorly in others. In the first case, it would be advisable to reduce the volume of production of goods, and in the second - on the contrary, to increase. Therefore, it is necessary to analyze the sales volumes in different countries and determine the optimal directions, and therefore the volume of production. But it should be remembered the fact that the sale of a product continues to produce profits in one or more countries if it only has economic meaning. Also, if the funds invested in the production and marketing of the product are successfully paid back within the scope of the company's international operations [8].

To effectively promote the products of PE “PPEK” abroad, the means of the international marketing communication system should be actively used. The system has a direct impact on a well-defined market or a specific segment thereof [49].

International advertising has its own specificity, but in general, the goals, principles and equipment that promote products in any market in any part that is in domestic trade.

In international marketing, advertising can be more impactful than in the national economy. You can use the solution you are proposing to develop for international advertising, but be tailor-made or tailored to your specific local markets [45].

Much of the business in modern conditions is done through digital networks. The Internet in this process is a revolutionary technology of our era that has provided companies and consumers with the opportunity to communicate and interact on a grand scale. According to the Internet Technology Online Sales Agency, the following tools are currently being used: banner advertising, contextual advertising and search engine promotion (SEO) [6].

There is an explanation for this. First, these tools are time-tested: banner ads are good for brand rankings, contextual advertising instantly accelerates sales when used correctly, search engine promotion also increases sales, but not as fast. Secondly, these instruments have been around for many years and they have repeatedly proven effective. Third, these budgeting tools are the largest in terms of company spending on the Internet, and the agencies that generate profits are in proportion to the client's budget [25].

In order to improve export of PE “PPEK”, it is necessary to develop a Program for improvement of international marketing activities.

The International Marketing Improvement Program means a set of actions organized to stimulate customers and to meet their requirements, as well as to minimize losses, namely losses in the number of customers and increase the number of sales required in countries the enterprise has the most profit from [38].

The key objective of the Program is to increase the number of re-sales and profits of PE “PPEK”. Other important goals include being able to retain and attract new customers, accumulate a large database of them and provide information support, and enable the exchange of information between an organization and its customers.

The complex of measures for improvement of marketing activity of PP “PPEK” is proposed to be defined as a specific combination of methods within the program of improvement, different communications, ways to increase satisfaction and optimization of the processes of rendering services aimed at achieving marketing goals [17].

The following activities will be taken into account when developing activities under the Program:

- Some measures that increase the economic viability of the purchase are not enough to improve the marketing activities of PE “PPEK”;
- Satisfaction level is an important factor in customer loyalty; the greatest influence on consumer perception is manifested directly in the process of its service [28];
- Marketing efforts aimed at creating a positive perception of consumed goods are usually carried out not by special staff engaged in performing local functions but by the staff responsible for providing service products.

The main task of developing the Program for improvement of the international marketing activity of PE “PPEK” is the efficient allocation and use of resources which, at the expense of the improvement of marketing activity, will allow to stimulate product purchases, to maintain and expand the customer base, as well as to increase the profit of the company.

Within the framework of the Program for Improvement of International Marketing Activity of PE “PPEK”, it is proposed to develop measures to enhance competitive advantages, namely:

- increase in sales;
- increase in market share;
- increase of profit of the enterprise.

All goals are interrelated and therefore, to achieve them, the following tasks must be solved:

- to introduce differentiated marketing for the markets of the offered goods and to develop plans of measures for in-depth study of segments and development of each of them;
- to form market monitoring;
- optimize prices;
- to develop assortment policy;
- to create a favorable image.

Thus, the proposed international marketing policy of PE “PPEK” should include the following steps:

- constant analysis of the dynamics of demand for one or another type of goods;
- identifying the types of goods that are in greatest and least demand;
- study the market needs for new products;
- making changes to the existing product range;
- increase in the share of products with higher added value - more profitable products in the structure of sales.

Therefore, the proposed marketing policy of PE “PPEK” will provide the company with sustainable competitive advantages.

3.2. Forecast and evaluation of the effectiveness of the implementation of new export strategy and the impact of the proposed measures on the results of the export activity of the enterprise

Consider the economic justification for the effectiveness of changing countries of importers of products.

The efficiency of export of goods is determined economically by statistical methods. The most appropriate of these are the methods of comparing revenue-net to the enterprise's total export costs, which include the costs of production and sales. It is influenced by such factors as the export price, the volume of sales, the level of overhead costs, the unit cost. export economic efficiency indicator is calculated by the formula:

$$E = \frac{R - SV \cdot C - Ov}{R} \cdot 100\% \quad (3.1)$$

where E is the indicator of economic efficiency of export, %;

R - proceeds from the sale of goods, USD;

SV - the volume of sales of flags for the year; C - average good price, USD;

C - cost of the good, USD;

Ov - overhead, USD.

There is a need to calculate performance targets after changing importing countries.

Export performance components are presented below:

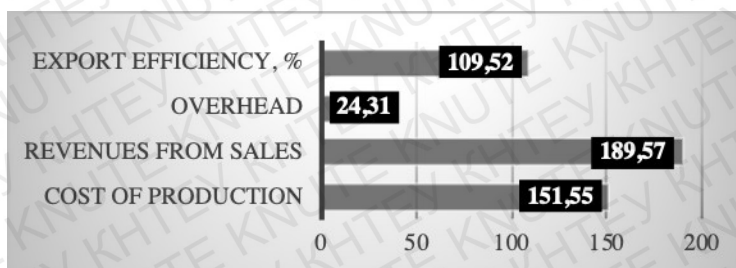


Fig 3.1. Planned export potential for PE “PPEK” 2020 year

Source: developed by the author based on the financial statement of the enterprise

According to Figure 3.1, we can conclude that the export efficiency would be 109.52%.

In order to increase the efficiency of the FEA implementation for PP “PPEK”, the following can be offered:

- Reorientation is always an increase in competition. In the conditions of crisis and high saturation and even oversaturation of world commodity markets, every commodity (and the manufacturer behind it) is forced to fight for consumer preference. The growing interest in quality caused by increased competition in the global market places a very specific challenge on the product manufacturer. The issues of standardization in this case are considered as a basic basis, without which it is impossible to improve the quality of products throughout the state as a whole. In general, there are no complaints about the quality of the goods, but the inefficient distribution of goods exports remains a problem, and it can be concluded that the export policy is carried out at an insufficient level, so these issues should be addressed;
- Competitive positions in international trade are also reflected through the price mechanism. Their level in foreign markets continues to be a valid lever for managing or weakening exporter positions. The cost of goods of PE “PPEK” remains high; it is necessary to work on reducing production costs. First, it is possible to do this due to the effect of scale. At the same time, the firm should be interested not in cost-effectiveness of achieving the highest possible competitiveness, but in ensuring its level that allows to reach the maximum amount of profit.

In order to improve the export strategy, to the company PE “PPEK” was proposed to use the following recommendations:

a) improving control in sales planning. By using economic and mathematical methods and models of forecasting and planning of sales, their improvement and restoration, including on the basis of use of the PC. The company is invited to use the following principles of control effectiveness in sales planning: not only the planning and

economic department should be engaged in sales planning within the organization, it should be assigned to a specialized unit of the sales or marketing department, which plays a coordinating role in planning the organization's activities. In addition, a system of operational control of the implementation of sales plans (procedures for preparation, analysis and control of daily reports on the implementation of sales plans) should be developed [26].

b) improving control over the implementation of sales plans. The detailed and documented marketing policy becomes an effective tool of current and subsequent control over the marketing activity of the organization and its position on the market.

Marketing Cost Effectiveness of PE “PPEK” in 2020 is calculated using an indicator such as RMI (Return on Marketing Investments). It allows you to consider the profit of the company as a goal, and managing the marketing budget as a means of achieving this goal.

The standard RMI shows the value of the company invested and the extra profit. However, the main difficulty is to establish the true cause of the extra earnings [42].

The standard formula looks like this:

$$\text{RMI} = (\text{additional sales} - \text{cost of additional sales} - \text{marketing costs}) / \text{marketing costs}$$

$$\text{RMI} = (28.43 - 22.73 - 0.5) / 0.5 = 10,4 \text{ (US dollars)}$$

Therefore, the PE “PPEK” RMI of 10,4 would be obtained in 2020. The obtained coefficient is more than 1, so the investments have already justified themselves.

The development of the export strategy of an enterprise is also affected by an increase in the volume of output. To increase the volume of production in paragraph 3.1, the following options were considered:

- use of automation
- use of geographic information system
- use of artificial intelligence

All these innovations will affect both the income of the enterprise and its costs. In order to evaluate the effectiveness of such decisions, it is necessary to calculate the costs of their implementation.

Drawing conclusions from the analysis above, improving the marketing strategy of an enterprise will bring an estimated \$ 10.4 million of additional income.

Automation on the example of the enterprise PE "PPEK" will be the most reasonable solution for implementation. It is proposed to draw up a 4-year plan for introducing new technologies at the enterprise. After the introduction of the new marketing strategy of the enterprise, additional funds can be spent on the introduction of automation in the enterprise. Thus, the increase in revenue in the early years of technology implementation will be less unprofitable for the enterprise. It is proposed to spend 80% of the additional income on automation, which in turn will save 15% of production costs.

In the following years, it is also proposed to introduce GIS and AI. But the best way to evaluate the effect of implementation will be after summing up the implementation of automation.

One of the solutions proposed a new method of saving resources. The enterprise can implement this by changing the energy source [15]. Estimated savings from switching to a new energy source will be 25-30% (reduction in operating costs). Which will be approximately \$ 28 million.

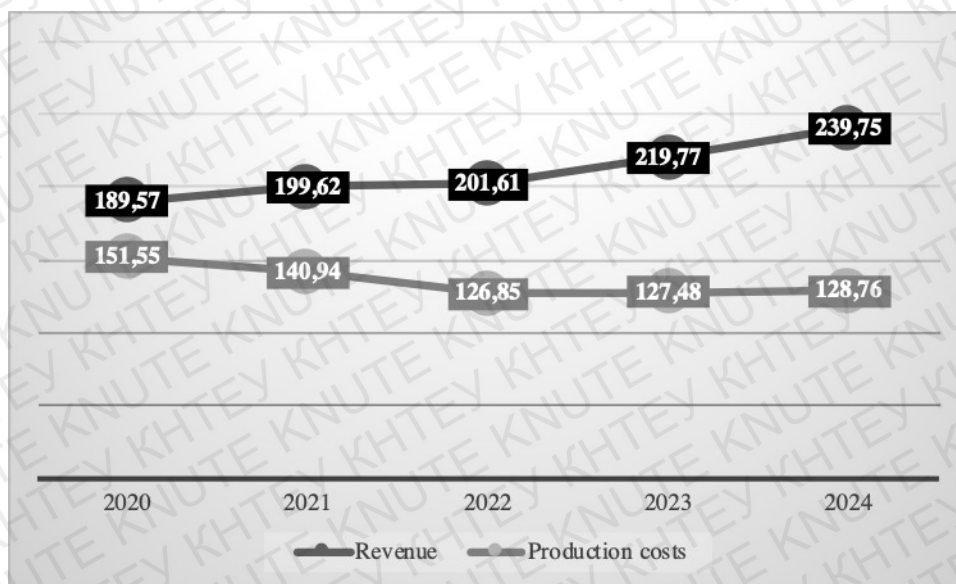


Fig 3.2. Dynamics of the expected revenue and production costs for PE "PPEK" 2020-2024, millions of USD

Source: developed by the author based on the financial statement of the enterprise

Drawing conclusions from the figure 3.2. above, we can say that after implementing new marketing strategy and setting more automation for the enterprise, it will get 10 millions of US dollars and also slight decrease in costs. Can be seen that at the end of 2022 year there is not a big increase in revenue in comparison with previous year. That happens because in 2022 are planned to introduce new technologies for the enterprise. Meantime, analyzing the rate of the production costs for the same year can be seen that there is significant decline because of implementing automation. Then, can be seen slight increase in costs because of the inflation.

We proposed to use several basic methods for forecasting the activity of PE "PPEK", namely the "moving average" method. Moving averages lag behind current price action because they are based on past prices; the longer the time period for the moving average, the greater the lag. Thus, a 200-day MA will have a much greater degree of lag than a 20-day MA because it contains prices for the past 200 days. According to the "moving average" method, the formula for calculating forecasts is [18]:

$$\hat{Y}_{t+1} = \frac{Y_{t+1} + Y_{t-1} + \dots + Y_{t-n+1}}{n} \quad (3.2)$$

where $t + 1$ is the forecast period;

t is the period preceding the forecast (year, month, etc.);

T_{t+1} is the predicted indicator;

$\frac{Y_{t+1} + Y_{t-1} + \dots + Y_{t-n+1}}{n}$ - moving average two periods before forecast;

n is the number of smoothing levels;

Y_t is the actual value;

Y_{t-1} is the actual value two periods before the forecast.

The necessary step of forecasting by the methods of "moving average" is to calculate the average relative error by the formula:

$$\left| \frac{1}{n} \sum_{t=1}^n \frac{Y_t - \hat{Y}_t}{Y_t} \right| \times 100 \quad (3.3)$$

Where Y_t is the actual value of the indicator,

\bar{Y}_t is the calculated value of the indicator,

n is the period of analysis.

Table 3.1

Forecasting net income of PE “PPEK” for 2020-2022. (based on the moving average method)

Number in order	Period (year)	Net sales (Yt)	Moving average (m)	Average relative error
1	2014	178	—	—
2	2015	110	129,73	17,62
3	2016	101	118,47	17,18
4	2017	144	146,07	1,44
5	2018	193	178,70	7,46
6	2019	199	190,92	4,06
7	2020	180,67	188,16	4,15
8	2021	184,81	185,01	0,11
9	2022	189,54	—	—
<i>Average Relative Error</i>				<u>9,55</u>

Source: developed by the author based on the financial statement of the enterprise

Drawing conclusions from the table 3.1. above we can say that using moving average method the amount of net sales will slightly drop between 2019 and 2020 years, nevertheless, there is a slight increase during the next 3 years.

Table 3.2 calculates the estimated cost of sales.

Table 3.2

Forecasting the indicator “costs of sales” for PE “PPEK” for 2020-2022

Number in order	Period (year)	Total cost (production and export), (Yt)	Moving average (m)	Average relative error
1	2014	166	—	—
2	2015	108	124,50	14,87
3	2016	99	114,04	15,52
4	2017	135	135,67	0,49
5	2018	173	161,09	7,03
6	2019	175	169,98	2,87

7	2020	161,67	167,40	3,55
8	2021	165,54	165,30	0,14
9	2022	168,69	—	—
<i>Average Relative Error</i>				<u>8,15</u>

Source: developed by the author based on the financial statement of the enterprise

According to the “moving average” method, the average relative error is 9.55 (forecasting net income) and 8.15 (forecasting the cost of sales). According to the normative values of the average relative error, the obtained forecast data by the method of "moving average" are reliable.

Table 3.3

**Growth reserves of the export strategy implementation for the PE “PPEK” in
2020-2022
(forecast taking into account the model of management decision making)**

№ i/o	Indicators	Years							
		2019 (preliminary data)	2020		2021		2022		
			Forecast	Export program improvement implementation	Forecast	Export program improvement implementation	Forecast	Export program improvement implementation	
1	2	3	4	5	6	7	8	9	

Continued table 3.3

1	2	3	4	5	6	7	8	9
1	Net income from sale (export), millions of US dollars	199,0	180,7	205,3	184,8	216,5	189,5	229,9
2	Total cost (production and export), millions of US dollars	175,0	161,7	182,2	165,5	180,5	168,7	189,5

3	Economic effect of export operation, millions of US dollars	19,7	15,6	18,9	15,8	29,5	17,1	33,1
4	Profitability of sale, %	9,9	8,6	9,2	8,6	13,6	9,0	14,4
5	Profitability of total cost, %	11,2	9,6	10,4	9,5	16,4	10,1	17,5

Source: developed by the author based on the financial statement of the enterprise

Analyzing the forecast from table 3.3., we can conclude that the proposed export strategy is effective.

CONCLUSION TO PART 3

Based on the analysis from second part of the paper, we can conclude that the export strategy of the company is in good condition. Significant changes to the strategy are not required, but there are a few things worth working on.

In the third section, we proposed methods to improve the export strategy of the enterprise, among which are: automation, artificial intelligence, geographic information system, the international marketing communication system and the main way to improve the export strategy of the enterprise is reorientation of the export.

On the example of the analyzed enterprise, was decided that it will be wise to introduce automation, GIS and AI. Significant investment will be required, but they will give their profits over the long term.

One of the drawbacks of PE “PPEK” is that the company does not pay much attention to finding new foreign markets and expanding existing ones. The enterprise can sell specific goods in some markets very well and very poorly in others. In the first case, it would be advisable to reduce the volume of production of goods, and in the second - on the contrary, to increase.

We defined that one of the methods to improve export strategy is effectively promote the products of PE “PPEK” abroad, the means of the international marketing communication system should be actively used. The system has a direct impact on a well-defined market or a specific segment thereof.

In order to improve export strategy of PE “PPEK”, it is necessary to develop a program for improvement of international marketing activities.

The International Marketing Improvement Program means a set of actions organized to stimulate customers and to meet their requirements, as well as to minimize losses, namely losses in the number of customers and increase the number of sales required in countries the enterprise has the most profit from.

The key objective of the Program is to increase the number of re-sales and profits of PE “PPEK”. Other important goals include being able to retain and attract new

customers, accumulate a large database of them and provide information support, and enable the exchange of information between an organization and its customers.

Therefore, the proposed marketing policy of PE “PPEK” will provide the company with sustainable competitive advantages.

According to the export potential analysis, we can conclude that the export efficiency would be 109.52%.

In order to increase the efficiency of the FEA implementation for PP “PPEK”, the following can be offered:

- Reorientation of the existing markets.
- The cost of goods of PE “PPEK” remains high; it is necessary to work on reducing production costs.

We proposed to use several basic methods for forecasting the activity of PE “PPEK”, namely the “moving average” method.

Drawing conclusions from this method we can say that using moving average method the amount of net sales will slightly drop between 2019 and 2020 years, nevertheless, there is a slight increase during the next 3 years.

Analyzing the forecast, we can say that the proposed export strategy is effective.

CONCLUSIONS

The largest iron ore deposits of world significance are located in Ukraine. Therefore, the topic of export of iron ore from Ukraine is very important. The untapped potential of Ukraine and individual enterprises in this area is huge. Therefore, one of the goals of this work was to study the effectiveness and development potential of the export strategy of enterprises in this area.

In the Krivoy Rog basin there are about 90 enterprises of various branches of ferrous metallurgy. Of the dozen major industries in the country as a whole related to the mining and processing of iron ore, seven (93%) are located in the Krivoy Rog region, which provides more than 90% of the needs of metallurgical enterprises in Ukraine. In Krivoy Rog alone, over 8 million tons of iron ore are mined annually. The enterprise that was analyzed is also located in Krivoy Rog.

In the first section of the work, the global iron ore market and the general characteristics of the enterprise under study were analyzed (“Prydniporvska fuel and energy company”). We identified the main market players:

4. Australia
5. Brazil
6. China
7. Ukraine

Ukraine takes the seventh place in the production of the usable iron ore and has the 3rd largest iron ore resources in the world and is the 9th largest producer of steel globally. Possessing such significant deposits of the raw material and steel production capacity, Ukraine has also become a major global exporter of both steel and iron ore. It is the 5th largest exporter of iron ore in the world and the 6th steel exporter.

Thus, production and export of iron ore is a major source of wealth in Ukraine and should be a major source of fiscal revenue.

In the second part of the first section, the analysis of the financial and economic activity of the enterprise and such conclusions were made:

The scope of activity of a private enterprise “Prydniprovskya fuel and energy company” is the mining of iron ore and technical support for other areas of mining and underground mining. In addition, the company is engaged in metal processing and coating on metals and basic technological processes of mechanical engineering.

Based on the financial analysis of the enterprise, we can conclude that:

Over the past five years, the company has experienced a recession and rise in financial terms. Since 2014, the company has been operating at a loss. In 2015, the situation is getting better and the level of loss fell by 600%. Such fluctuations are associated with a domestic crisis and a political revolution.

In 2017-2018, the political and economic situation in the country stabilized and, in contrast to the loss of the Russian market, relations and trade with the countries of Western Europe were improved. This has affected the growth of the financial results of the enterprise.

After analyzing the business activity of the enterprise, we can draw the following conclusions: the turnover of assets in the enterprise is in good condition for the metallurgical industry and shows that the company uses its assets quite efficiently.

In summary, the company is in a good financial position and can handle its short-term debts. All indicators with the exception of current ratios rose over the past year, which in turn indicates a healthy financial situation.

Then PESTE showed which factors influence the company and its export strategy.

Analysis of the political factors showed that mainly the impact is negative. Three out of 5 factors negatively affect the enterprise. The other two factors are not stable. The situation in the world market may change at any time, so the conclusion remains negative.

Economic factors showed that the increase in China's demand in connection with the restructuring of the economy may favorably affect the export of iron ore. It is also beneficial that the market is controlled by three companies. Significant price fluctuations on their part are not expected.

Regarding social factors, there have been no major changes in a few years. Social factors are stably negative in Ukraine, only with the advent of new political power in 2019 changes will begin.

Technological factors do not significantly affect the enterprise and industry as a whole. The development of technological factors can well affect the development of the country's economy and the improvement of the financial condition of the enterprise.

Analyzing environmental factors, we can conclude that in the current state of the economy, they can negatively affect the production of iron ore.

After, the financial and export strategy of the enterprise were analyzed.

We can conclude that the company exports the main types of manufactured products. Despite the fact the company receives the largest share of revenue from finished products, iron ore concentrate is the largest product in terms of volume. It is also worth noting that finished products were not the main source of export revenue in 2014, but the situation changed during the analysis. This is due to the reorientation of the export strategy and due to the loss of the Russian market and the opening of the European market to Ukraine. Despite the fact that even before the deterioration of market relations with Russia, the company was stable in trading with European countries, the situation after 2014 significantly influenced changes in export directions.

Drawing a conclusion from the analysis of the geographical structure of exports, we can say that the enterprise has entered all the necessary markets and now it makes sense to develop internal factors influencing the strategy and make reorientation of the export strategy.

Then the following problem areas were highlighted:

- it is worth paying attention to ways to increase sales of products
- It is also worth redistributing product exports to countries with the highest percentage of income
- the collateral product system requires minor improvements

In the third section, we proposed methods to improve the export strategy of the enterprise, among which are: automation, artificial intelligence, geographic information

system, the international marketing communication system and the main way to improve the export strategy of the enterprise is reorientation of the export.

Then, we calculated and estimated the effectiveness of proposed methods. Planned export potential were calculated for 2020 and it says the efficiency of the export would be around 109,52%. It says that new export strategy will benefit the enterprise. Also, we calculated return on marketing investments and it showed that the enterprise will get 10,4 US dollars as an additional income after implementing the new marketing strategy. However, it is difficult to accurately assess the effectiveness of the influence of all indicators on the export strategy of the enterprise. Depending on the choice of methods for developing an export strategy, efficiency will vary. On average, the enterprise can achieve the cost savings of 25% and increase in profit by 8-10%.

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APPENDICES

Appendix A

All amounts in millions of USD

	Note	31 December 2018	31 December 2017
ASSETS			
Non-current assets			
Goodwill	9	14,14	14,36
Other intangible assets	10	2,83	2,86
Property, plant and equipment	11	0,11	0,10
Investments in associates and joint ventures	12	25,38	25,83
Deferred tax asset	28	1,90	2,60
Income tax prepaid		-	0,19
Trade and other receivables	14	9,64	4,31
Total non-current assets		160,81	148,52
Current assets			
Inventories	13	32,07	29,40
Income tax prepaid		0,17	0,21
Trade and other receivables	14	6,64	55,76
Cash and cash equivalents	15	6,67	6,17
Total current assets		105,33	91,55
TOTAL ASSETS		266,14	240,07
EQUITY			
Share capital	16	0	0
Share premium	16	148,21	148,21
Other reserves	17	-217,71	-212,71
Retained earnings		196,76	164,14
Equity attributable to the owners of the Company		127,26	99,64
Non-controlling interest	18	1,38	2,93
TOTAL EQUITY		128,64	102,57
LIABILITIES			
Non-current liabilities			
Loans and borrowings	19	52,24	65,21
Retirement benefit obligations	21	9,79	8,79
Deferred tax liability	28	5,71	7,14
Other non-current liabilities	22	4,67	1,90
Total non-current liabilities		72,40	83,05
Current liabilities			
Loans and borrowings	19	11,64	6,45
Deferred consideration and seller's notes	20	1,43	0,17
Income tax payable		1,40	1,86
Trade and other payables	23	50,62	45,98
Total current liabilities		65,10	54,45
TOTAL LIABILITIES		137,50	137,50
TOTAL LIABILITIES AND EQUITY		266,14	240,07

Signed and authorised for release on behalf of PE "PPEK" on 20 February 2019:

Continued Appendix A

Revenue	7	282	212,6	Summary Consolidated Statement of Comprehensive Income All amounts in millions of US dollars
Cost of sales	24	-216,5	-160,9	
Gross profit		66,4	51,8	
Distribution costs	24	-21,1	-17,2	
General and administrative expenses	24	-5,4	-4,6	
Other operating income / (expenses), net	25	-2,9	0,9	
Operating profit		37,0	30,95	
Results of the loss of control over the assets located on temporarily non-controlled territory	8	-	-7,8	
Finance income	26	1,6	0,7	
Finance costs	27	-8,0	-8,3	
Share of result of associates and joint ventures	12	4,1	4,5	
Profit before income tax		34,8	20,0	
Income tax expense	28	-6,5	-5,3	
Profit for the year		28,3	14,7	
Profit is attributable to:				
Owners of the Company		27,3	14,4	
Non-controlling interests		1,0	0,3	
Profit for the year		28,3	14,7	

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	18	17
Profit for the year	28,3	14,7
Other comprehensive income / (loss)		
<i>Items that will not be reclassified to profit or loss:</i>		
Remeasurement of retirement benefit obligation	<u>21</u>	-0,3
Revaluation decreases that offset previous increases in the carrying amount of property, plant and equipment	11	-0,1
Share in other comprehensive income / (loss) of joint ventures and associates	0,6	0,9
Income tax related to items that will not be reclassified subsequently to profit or loss	0,24	1,3
<i>Items that may be reclassified subsequently to profit or loss:</i>		
Currency translation differences	0,7	-2,0
Total other comprehensive income / (loss)	1,0	-7,5
Total comprehensive income / (loss) for the period	29,2	7,1
Total comprehensive income / (loss) attributable to:		
Owners of the Company	28,21	7,02
Non-controlling interests	1,02	0,12
Total comprehensive income / (loss) for the period	29,24	7,14

Continued Appendix A

	Note	Year ended 31 December 2018	Year ended 31 December 2017
Cash flows from operating activities			
Profit before income tax		34,8	20,0
<i>Adjustments for:</i>			
Depreciation of property, plant and equipment and amortisation of intangible assets	24	13,1	12,5
Impairment of property, plant and equipment and intangible assets	8, 24	0,1	6,8
Impairment of associates and joint ventures	12	-	0,2
Gain on disposal of property, plant and equipment and intangible assets	25	-0,2	-0,2
Finance income	26	-1,6	-0,7
Finance costs	27	8,0	8,3
Foreign exchange losses less gains / (gains less losses), net	25	1,7	-1,6
Net change in retirement benefit obligations, except for interest costs, remeasurements and currency translation	21	-0,4	-2,1
Impairment of trade and other accounts receivable	25	1,7	0,2
Share of result of associates and joint ventures	12	-4,1	-4,5
Write-down / (reversal of write-down) of inventories, net	13	0,2	2,3
Write-off of trade and other payables	25	-0,8	-
Other non-cash operating income, net		0,1	0,2
Operating cash flows before working capital changes		52,5	41,3
Increase in inventories		-3,1	-8,5
Increase in trade and other accounts receivable		-13,0	-19,8
Increase in trade and other accounts payable		4,2	8,0
Cash generated from operations		40,6	21,0
Income taxes received/ (paid)		-7,5	-3,7
Interest paid		-6,9	-3,2
Net cash from operating activities		26,3	14,2
Cash flows from investing activities			
Purchase of property, plant and equipment and intangible assets		-18,3	-11,1
Proceeds from sale of property, plant and equipment		-	0,02
Acquisition of associates		-0,7	-
Loans issued	14	-1,1	-
Interest received		0,4	0,4
Dividends received		10,0	-
Other payments		-0,5	-
Net cash used in investing activities		-10,2	-10,7
Cash flows from financing activities			
Repayment of seller's notes and deferred consideration	19	-3,3	-0,9
Payments for loans commission		-1,9	0,1
Proceeds from loans and borrowings	19	3,5	-2,1
Repayment of loans and borrowings	19	-43,8	2,8
Net trade financing proceeds / (repayment)	19	1,9	0,0
Acquisition of non-controlling interest		-1,2-	-
Dividends paid	29	-1,4	-0,5
Other finance costs		-0,5	-2,6
Net cash used in financing activities		-15,3	-2,0
Effect of exchange rate changes on cash and cash equivalents		-0,2	-0,1
Net increase in cash and cash equivalents		0,5	0,8
Cash and cash equivalents at the beginning of the year		6,2	5,4
Cash and cash equivalents at the end of the year	15	6,7	6,2

Appendix B

Sales by markets	2018		2017		Deviation	
	US\$ millions	US\$ millions	US\$ millions	% from revenue	Amount	%
Total	144,0	100%	193,17	100%	53,929	58%
Ukraine	39,90	27%	22,17	24%	17,762	80%
Europe	49,90	34%	35,07	38%	14,810	42%
Mid. East and Africa	30,17	21%	14,95	16%	15,214	>100%
CIS (except Ukraine)	9,76	7%	8,29	9%	1,476	18%
Asia	6,19	4%	6,71	7%	-0,524	-8%
North America	9,24	6%	5,29	6%	3,952	75%
Other	1,95	1%	0,69	1%	1,262	>100%