Kyiv National University of Trade and Economics

Department of Economics and Business Finance

FINAL QUALIFYING PAPER

on the topic:

Identification and management of value drivers at the enterprise

based on the data of the Slovechansk forest farm AIC, Slovechno, Ovruch district, Zhytomyr region

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INTRODUCTION

The relevance of the research. Nowadays, the problem of shareholder value growth remains crucial. Managers of the largest international companies as well as Ukrainian enterprises are looking for the best drivers to create added value for owners and attract new investors. Defining of the main value drivers of an enterprise for maximizing of stockholder returns is a usual practice around the world. In Ukraine, such experience is not widespread that creates a need to investigate this subject and implement the practice of the most developed countries.

Comprehensive analysis of the value drivers consists of value driver`s investigation, creating the system of value drivers for the forest enterprise and defining of the effectiveness of its implementation. Therefore, implementation of value driver`s system is noted as one of the most important component of company`s management.

Proposed methods of the market value improvement allows a company to raise its value in the further performance and stay competitive on the market in the case of external or internal changes.

The study of value formation and defining of the main drivers of an enterprise belongs mostly to the foreign scientists. As theoretical definition, value drivers are unified in foreign publications, in which scientists are mostly concentrated on the driver's identification and driver's networks formation for different economy sectors. For example, Titko J. Shina I. [32] identifies non-financial value drivers in banking sector, J. Hall [16] describes value drivers for industrial companies, T. Horak, U. Kister, and R. Dacshelt [17] are concentrated on the automatization and implementation of value driver`s tree in the business process system of an enterprise. Contemporary issues of the value driver`s tree implementation in the business process modelling and business performance analysis devoted some works of A. Burrows [5]. Besides, value driver's identification is a meaningful subject of research for the analytics of the largest business-consulting companies, such as LEC consulting [18]. Among Ukrainian recent

articles value driver's identification is described in the works of N. Obushna, Y. Rovnyj [45], O. Lahovska [44]. We proposed a solution to the problem of identifying industry-specific value drivers for the food industry in the study [38], but for other economy sectors, the scientific justification of value drivers is not a completed task yet.

The purpose of the work is to reveal the necessity of the value driver's implementation in the forestry industry in compliance with their identification as well as finding out of the influence they have on the overall performance of the enterprise.

To achieve the purpose, the next tasks were established and carried out:

- to investigate theoretical and methodological basis of value driver`s system at the enterprise
- to analyze current position of the enterprise
- to create value driver`s system suitable for the forest enterprise
- to improve market value of the company

Object of the study is the process of identification and management of value drivers at the enterprise.

Subject of the study is theoretical aspects and methodological approaches of identification and management of value drivers at the enterprise.

The empirical basis of the investigation was Slovechansk forest farm, the subsidiary enterprise of the Zhytomyr Regional Municipal Agroforestry Enterprise Zhytomyroblagrolis of the Zhytomyr Regional Rada, established in 1984. According to the KVED (classifier of economic activities of Ukraine), the main activity of the enterprise is 02.10 Forestry and other activities in forestry.

Methods of the investigation. To achieve the purpose, general and special scientific methods were used to study theoretical basis of value creation of the company; comparative and analytical methods were used to investigate existing systems of value drivers; synthesis method was used to justify the need of using value drivers in the forestry industry; induction method was used to reveal and propose the most acceptable drivers for the forestry industry.

The following computer programs were used for data entry and analysis: Microsoft Word, Microsoft Excel.

The information base of the study consists of scientific works and other literature on this issue, relevant official statistics, Internet sources, financial statements of the enterprise, regulatory documents.

Practical meaning. The results of value driver`s system implementation at the enterprise, as well as the proposed ways to improve it, can be used by the enterprise to increase company`s value.

Scientific novelty consists in using of the value driver`s system for the Ukrainian non-public companies. In addition, this method wasn`t previously used for the forest industry by any Ukrainian scientist that shows the novelty of the research.

Approbation. The results of the investigation were reported in the article «Value driver's implementation for the forestry industry» and published in the magazine «Goods and markets» of Kyiv National Trade and Economy University, third issue of 2020, pages 22-30.

The structure of the final qualifying paper is determined by its purpose and tasks and includes introduction, three chapters, conclusions and proposals, references and appendices. Total amount of pages in the paper is 45 pages.

CHAPTER 1

THEORETICAL AND METHODOLOGICAL BASIS OF VALUE DRIVERS SYSTEM AT THE ENTERPRISE

The concept of a company`s value has raised as far back as the 16th century. [20] The example of the value creation process can be the words of the judge Lord Elton: "the value of the company, which is the subject of commerce, is nothing but the probability that old customers will back to the old place, even without the old merchant or shopkeeper" [36]. It confirms that earlier companies aimed to keep customer loyalty to find main value drivers. But now the goal is a little different – maximize shareholder value. Despite different purposes, it shows that scientists understood the need for value drivers defining even a century ago.

The main intention of value based management today is to increase shareholder value, i.e. the value of the company. In order to increase company`s value, investments have to yield higher returns than the costs of capital.

To achieve the goal, we should define the system of value drivers at the enterprise. Only finding of value drivers can help us understand what factors have the biggest influence on the company.

But first of all, we should understand the principles of value driver`s implementation.

In value based management, two main principles exist which we should remember if we want value driver implementation to rise company`s value. So these two principles are:

1. value driver`s implementation should lead to an enhancement of capital allocation, a long-term and more strategic focused management and decision making process

2. considering of the value drivers should lead to a management consistent with the companies' economic goals. [32, p 3]

These principles can be used for any company and it doesn`t matter the size, industry, legal form or other peculiarities.

For the understanding how exactly we should organize the process of value driver`s implementation, we should define the steps which are the most important for this process. They are:

1. embracing value maximization as the ultimate financial objective for the company.
2. establishing of the nonfinancial goals [16]

These two steps are needed to create full picture of value drivers at the enterprise. The first step is very important as earnings are not always good indicator for value creation but many companies can wrongly use them. If the company is not listed on the stock market, we can`t understand whether returns from the company's activities are enough to cover the cost of capital that is required on the market.

Defining of the non-financial goals are the second important step in establishing of value driver tree at the enterprise. We often erroneously don`t give enough attention to non-financial drivers and as a result, get wrong forecast. It happened because sometimes non-financial drivers can have greater influence on the value. Even if we cannot transform them directly into numbers, we should investigate them clearly.

A value driver is any variable that affects the value of the company. To be useful, however, value drivers need to be organized so that managers can identify which have the greatest impact on value and assign responsibility for them to individuals who can help the organization meet its targets. [16]

But implementing of value based management system is only half of the work. After creating value driver tree, management of the company should create a strategy how to implement it on the enterprise. For each department should be established own

goals according to which they should make a decision how to achieve an ultimate goal. Besides, all employees should be acquainted with this goal and understand it clearly.

McKinsey company gives four essential management processes that collectively govern the adoption of VBM: [23]

1. a company or business unit develops a strategy to maximize value
2. it translates this strategy into short- and long-term performance targets defined in terms of the key value drivers
3. it develops action plans and budgets to define the steps that will be taken over the next year or so to achieve these targets
4. it puts performance measurement and incentive systems in place to monitor performance against targets and to encourage employees to meet their goals.

For now, it is understandable that research of value drivers is only the first part of value driver system implementation. And if the value drivers will be found correctly and the influence of these drivers will be established accurately, it doesn`t mean that process of implementation and controlling is not so important. Without developing financial strategies and measurement of its performance, a company cannot get successful results.

Now move to the essence of value driver. During the analysis of scientific works such definitions were chosen as the most appropriate for this notion. In the business dictionary we can find value driver as an important factor that determines or causes an increase in value of a business, as viewed by investors [30].

J. Hall [16] considers that value drivers are any variables that affect the value of the business. Bocharov [41, p 14] describes value drivers as system of key value factors by which business is managed.

Ukrainian scientists N. Obushna and Y. Rovnyi [45] believe that value factors are the components that determine the scale of an increase (decrease) in the value of an enterprise, which leads to an improvement (deterioration) in the well-being of the owners and shareholders of the enterprise.

In our previous research [38] we defined value drivers (calling them factors) as a key factors of value creation and highlighted the following groups of cost drivers. These drivers have been identified based on value–creating factors research at the food industry: group 1 – technological factors – a level of technology, capacity utilization; group 2 – transactional factors – a level of cash payments in economic circulation; group 3 – institutional factors: a degree of participation of the enterprise in formal and informal integrated structures, type of interaction of the management of the enterprise with local authorities; group 4 – innovative factors. We have added environmental and developmental factors of related industries as drivers of value for food companies.

Generalizing the thoughts of scientists, we can conclude that some researchers call it drivers, some – indicators, and others – factors. But they define the same purpose – to increase the value of the company to satisfy investors' requirements.

In all developed countries implementation of value drivers are widespread in all industries and the practice of their usage is successful. Unfortunately, in Ukraine, such practice is implemented mostly by international companies. But there is a necessity of applying value driver's strategy on the national enterprises.

The modern forestry industry is one of those who requires reforms. Besides, the reformation process is supposed to be started in the nearest future. It can become a challenge for companies in this sphere. To cope with it, companies should create own system of value drivers.

Recently the head of the State Forestry Agency announced that E-wood sales auctions will be created and it`ll help to determine its volume in the country and set competitive prices. [13] In the future, it will create a real picture of wood resources existing in the state and help to plan long-term investments. It can become a big breakthrough in establishing and developing transparency in this sphere.

Besides, on January 16, 2020, the Parliament passed the law on amendments to the Tax Code of Ukraine [21], which was carried out by improving of the tax administration. According to this law, the rent rate for each breed will be applied

without bits of detail, which will make it easier to calculate the rent for permanent forest users. In addition, adopting of a single rate for most forestry businesses will reduce the tax burden on the rent payments.

Such changes in legislation are positive for investors but law improvement and adaptation to international standards are only one component that can attract free money in this industry. Another key one is value creation. And it is possible only with the help of value driver`s defining and practical usage.

It is worth mentioning that almost all activities in the industry come from the money received from the sale of the wood, goods, and services provided by state forestry enterprises. If you look at other countries in Europe and the world in general, you probably don`t not find any civilized country that does not allocate funds from the forestry budget. Unfortunately, Ukraine is unique in this case. And without government financing, companies need to find new ways of efficiency improvement. So it is one more reason for forestry enterprises to implement value driver's systems.

One more question, which should be analyzed, is the ownership of the forest enterprises. This is a question about the effectiveness under different types of ownership.

Each scientist defines own set of value drivers for the firm. Some drivers are general for all companies and industries but some are special for the enterprise.

Some researches divide them into three categories: growth drivers, efficiency drivers, and financial drivers and tend to manage these value drivers in four ways: invest in value-creating growth opportunities, invest in operating efficiency, divest in value-destroying activities, reduce capital cost [18, p. 4]. Others define such drivers as sales growth rate, operating profit margin, income tax rate, incremental investment in working capital, incremental investment in fixed capital, replacement of fixed capital, cost of financing (cost of capital) and forecast duration (the planning period) [2, p. 2].

According to A. Rappaport [28, p. 193] there are seven macro value drivers, the most important of which are sales growth rate, operating profit margin, income tax rate,

working capital investment, fix capital investment, cost of capital, value growth duration.

The most important value drivers from the viewpoint of banking experts are: knowledge and competence of bank employees, effective remuneration and motivation system, and operating efficiency of employees.

Coming from the value drivers mentioned above, we can see that all drivers are divided into the same groups. Inside these groups, value drivers can be different according to the sphere in which the company operates.

In the process of value driver`s tree designing we should understand the next peculiarities:

1. it should be taken into account that positive changes in one of the drivers can cause a negative effect on another. The shift of drivers shouldn`t decrease the general effect
2. when the management of the company changes one driver, it leads to the changing of the overall combination of drivers.

In order to define value drivers for the forestry industry, the company should firstly, determine the impact of each one on the operating activity of the enterprise and secondly, create a set of drivers that is called value drivers' tree.

CHAPTER 2

VALUE DRIVER`S MANAGEMENT AND IDENTIFICATION OF THR SUBSIDUARY ENTERPRISE SLOVECHANSK FOREST FARM AIC

2.1 Enterprise`s analysis of the financial position

Analysis of the financial position is one of the key stages in company investigation in order to implement any decision. This study allows you to find strengths and weaknesses in the activities of the enterprise or its individual unit, identify deviations from the plan and ensure immediate elimination of errors, made conclusions regarding the effectiveness of the enterprise to improve it in the future periods.

The financial position analysis of the enterprise includes the analysis of the current and non-current assets of the enterprise, as well as the analysis of the capital and liabilities of the enterprise.

The analysis of the current assets involves several components, namely: analysis of the total current assets dynamics, analysis of the current assets dynamics by their main types [40].

To begin with, let's analyze the volume and composition dynamics of the current assets of the enterprise for the last 6 years, 2014-2019 (Appendix A). During this period, a positive trend of current assets for growth has been observed. The largest growth was recorded in 2015, which almost doubled growth of 2014. This increase was mainly due to 3,75-fold increase in cash. Usually this situation indicates inefficient use of funds by the company, but in our case there was a significant reduction in receivables for goods, works and services, which released a significant amount of money needed to support the company. In addition, there was an increase in inventories, which means expanding activities and the necessity to raise more sources of financing. Only in 2017 the situation differed - a decrease in cash by 8,42% compared to 2016. Analyzing the change in the current assets in 2017, it becomes clear that the decrease in cash was caused by the

appearance of receivables on advances and a significant work in progress increase, which led to the decrease in finished products about 36%. In 2018, this problem was eliminated.

The dynamics of receivables and cash should be considered in more details. Accounts receivable was increased in 2019 in comparison with 2014. This trend is caused by an increase in other accounts receivables. This item we can`t investigate more as we haven`t additional details about components of other accounts receivables. Cash was increasing during 2014-2018 years, but the largest was in 2015: almost in 4 times due to an increase in cash and bank accounts. In 2019 cash and cash equivalents declined more than two times. Unfortunately, we haven`t all inside information that is needed for making a decision about whether this trend is positive or negative for the company, but management should pay attention to this and find a solution in case of a problem. Our assumption is that this decrease was due to investing in inventory.

Next step of our analysis is the structure of current assets of the enterprise (Appendix B).

Regarding the structure of receivables, its part is not significant in the structure of current assets. The largest part of it is receivables for goods, works, services, and there is a tendency of reducing the share of receivables during the analyzed period. Reduction of receivables is absolutely positive trend for the enterprise as it means that the company transforms it to cash and can invest for the further development and extension.

Only one bad signal can be understood by the declining of the account receivables – it`s decreasing of sales volume. In 2019 sales of the company were really decreased hugely. This situation must be investigated by the company`s management and try to remedy it as soon as possible.

The cash structure consists of only two elements: cash and bank accounts. The table shows that the company mainly uses bank accounts to settle payments with contractors, employees and other business entities. The share of cash and bank accounts relative to the total current assets amounts from 30% to 60%. Such a significant portion

of cash may indicate inefficient use of cash in the enterprise, which requires management to make a decision about raising of effectiveness of available financial resources usage.

The share of inventories in the total amount of current assets varies from 30% to 70%. The biggest part of inventories is work in progress. This situation is negative for the company, because it can indicate high depreciation of fixed assets involved in the production process, as well as inefficient organization of production, which leads to a slowdown in inventory turnover. Therefore, the company's management should find out the cause and eliminate it to increase efficiency. But in 2019 we can see that the share of finished goods become about 3 times bigger. And now we can suppose that cash was used for improvement of production process or raising of production volume.

We should also focus the attention on the company's non-current assets. (table 2.1)

Table 2.1

Non-current asset`s structure analysis of the Slovechansk forest farm AIC during 2014-2019

Indicators	31.12.14	31.12.15	31.12.16	31.12.17	31.12.18	31.12.19
	%	%	%	%	%	%
Non-current assets						
intangible assets	1,56	1,39	0,88	0,93	0,89	1,09
initial value	1,56	1,39	0,88	0,93	0,89	1,09
unfinished capital investment	39,04	0,00	0,00	0,00	0,00	0,00
fixed assets	59,40	98,61	99,12	99,07	99,11	98,90
initial value	192,18	230,88	200,50	225,70	248,49	322,25
deterioration	132,79	132,27	101,38	126,63	149,37	223,35
Total non-current assets	100,00	100,00	100,00	100,00	100,00	100,00

In this table, we observed that the largest share in the structure of non-current assets are fixed assets. This tendency remains unchangeable during the analyzed period.

It should be noted that the amount of intangible assets is constant during the analyzed period. Only fixed assets were changing - were decreasing during 2014-2017, 2019 and in 2018 increased not significantly. (Appendix C)

The reduction in fixed assets indicates their high depreciation and the need to upgrade them in order to improve efficiency.

The next step in our analysis will be the investigation of the structure and dynamics of company`s capital. Let's start with the analysis of the equity dynamics (Appendix C).

Retained earnings have a positive tendency to increase throughout the analyzed period and we should notice that the increase is significant. Additional capital increases only during 2014-2016, then declining tendency is following. But the change in additional capital is not significant, so it does not have a huge effect on the structure of both equity and debt capital.

Additionally, we analyzed the structure of equity of the enterprise (table 2.2).

Table 2.2

Equity structure of the Slovechansk forest farm AIC during 2014-2019

Years	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018	31.12.2019
Elements	%	%	%	%	%	%
Equity						
Additional capital	25,71	15,15	5,38	4,86	4,41	4,08
Retained earnings	74,29	84,85	94,62	95,14	95,59	95,92
Total equity	100,00	100,00	100,00	100,00	100,00	100,00

The structure of the equity throughout the period includes only 2 components: additional capital and retained earnings. As a part of equity, the share of retained earnings grew steadily. The increase in equity due to retained earnings indicates an increase in profitability and efficiency.

It is worth noting that the company has no long-term liabilities, so the analysis will be carried out only on the third section of the liabilities of the balance sheet, namely the analysis of the current liabilities and collateral.

Firstly, consider the dynamics of current liabilities and collateral (Appendix D)

The table shows that the dynamics of current liabilities does not have a clear trend. In 2015, current liabilities increased by 68,29%, in 2016 and 2017 decreased by 49,03%

and 2,01%, respectively, in 2018 increased again by 55,9% and in 2019 decreased by 24,1%. A significant decrease in 2016 was caused by a decrease in accounts payable for goods, works and services by 58,8%, accounts payable with budget by 17,33%, accounts payable for advances received by 82,71%. The decrease in 2017 is not significant and is caused by items that do not occupy a large share in the structure of borrowed capital, namely: insurance payments, wages and accounts payable for advances received, which decreased by 63,01%, 64,35% and 65,18% respectively.

Thus, the company should establish a system of management that optimizes the amount of accounts payable and receivables, as well as establishes a system of current planning in the company.

In order to improve the current accounts payable, its structure should also be considered (Table 2.3).

It is worth to say that the share of current liabilities and collateral in 2014-2015 was about 75% of total capital. Instead, in 2016-2019, the situation changed dramatically - the share of current liabilities and collateral ranged from 30% to 40%.

Table 2.3

Liabilities structure of the Slovechansk forest farm AIC during 2014-2019

Years	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018	31.12.2019
Accounts payables for:	%	%	%	%	%	%
goods and services	29,13	34,19	28,14	38,17	25,36	8,21
payments with budget	14,95	15,40	25,42	42,80	29,60	44,19
including profit tax	5,34	0,00	0,00	4,09	0,00	0,00
payments for insurance	2,01	1,88	6,27	2,37	1,53	2,09
salary payments	4,72	3,77	23,29	8,47	5,95	8,50
accounts payables for advances received	48,75	44,61	15,40	5,47	37,21	0,00
Other current liabilities	0,43	0,15	1,48	2,72	0,35	37,02
Total current liabilities	100,00	100,00	100,00	100,00	100,00	100,00

This situation was caused by a significant reduction in accounts payable for goods, works, services and current accounts payable on advances received. This indicates that the company has improved its credit policy for cooperation with suppliers.

Next, consider the movement in cash at the enterprise. This analysis is quite important, because the report of the financial results of the enterprise does not reflect the actual amount of funds available to the enterprise at the end of the reporting period. Therefore, it is necessary to carry out a vertical and horizontal analysis of cash flows at the enterprise during 2014 - 2019.

It shows that the cash flow from operating activities is positive throughout the analyzed period and its size varies. In 2016 and 2017, there was a decrease in net cash of the enterprise. This situation was caused mainly by a decrease of advances from buyers and customers by 68% in 2016 and a decrease to almost zero in 2017. In addition, interest income from deposits also shows a significant decrease of 95% and 55% in 2016 and 2017, respectively. Besides, there was an increase in expenditure on income tax liabilities by 3 times in 2016, and there was an increase in expenditure on value added tax liabilities by almost 45 times in 2017. But already in 2018, the company's management began to rectify the situation by improving the efficiency of the cooperation with buyers and customers, that allowed to attract significant amounts of money for the company's activities by increasing advances from buyers and customers. (Appendix E)

Moreover, the largest share in the cash structure of the enterprise throughout the analyzed period is occupied by revenues from sales of products. Concerning the structure of negative cash flows, the table shows that the largest share in the structure of cash expenditures is occupied by payment for goods, works and services, wages and liabilities for taxes and fees. It is worth noting that the proceeds from the sale of products cover almost all expense items, which indicates effective work with buyers and customers. (Appendix F)

Next, we consider the cash flow from investing activities and analyze it also with the help of horizontal and vertical analysis. (Appendix G)

As a result of investment activities there is only the expenditure of funds for the acquisition of non-current assets. This indicates that the company only invests in non-

current assets, the return of which is not reflected in the cash flow as a result of investment activities. Instead, the company has no income from investment activities, as it does not implement any investment projects and does not receive dividends.

Investments in the acquisition of non-current assets increased throughout the analyzed period, except for 2017, which saw a decrease in cash expenditures by 78%.

Next, consider the cash flow from financing activities. (Appendix G)

After cash flows analysis, we can conclude that the company does not have a negative cash balance during analyzed period, except 2017. Instead, net income in 2017 was positive, but the real situation was shown only by the statement of cash flows. Therefore, managers should always analyze the dynamics and structure of net cash flow to define strengths and weaknesses of the enterprise.

2.2 Value driver's identification

To better understand the financial drivers of the enterprise, firstly, we should define their influence on the company`s results. Let`s start with considering of operating and cash conversion cycles duration of the enterprise.

Practically, there is a significant relationship between the cash conversion cycle, which is considered as a proxy of working capital management, and profitability of the manufacturing firms. This provides an opportunity to create value for shareholders by decreasing receivable accounts and inventory, enhancing the profitability of the firms and reducing the collection period and by adopting effective credit policy. [22, p 81]

The operating cycle is the interval between the order of inventory stock and the date when cash is collected from receivables. The cash conversion cycle begins when the company pays cash to suppliers for the materials purchased and ends when cash is collected from customers for credit sales. [22, p 82]

Thus, from these definitions it is clear that the operating cycle differs from the financial on the period of accounts payable. Also, the difference is that the operating cycle reflects the period during which inventories are renewed and receivables are repaid, and the financial cycle shows the period of turnover of financial resources of the enterprise.

According to the analysis, it was determined that the duration of the operating cycle was constantly decreasing, which has a positive trend for the company. This trend is caused by a decrease in the period of turnover of all types of inventories and receivables. The only exception is 2017 and 2019, where the duration of the operating cycle is equal 81 and 100 days. The increase occurred only due to the growth of inventories and receivables. This indicates that the number of buyers became smaller and as a result inventories were not sold, which led to an increase in the duration of the operating cycle. As a proof we can look at the sales which were decreased in 2017 and 2019 (Appendix H).

The length of the financial cycle from 2014 to 2016 was negative. A negative value of the duration of the financial cycle indicates that the company releases funds that can be used for increasing the volume of activity, that will accelerate the turnover of assets. In such way, the negative value of the financial cycle means that customers pay their debts to the company faster than the company pays debts on its own obligations. But the trend of cash conversion cycle is not advantages for the enterprise, because in 2017 the duration of the financial cycle reaches a positive value - the company needs five days to attract borrowed funds to finance its own activities. Observing a constant tendency to increase the duration of the financial cycle, we can predict its further growth in the planning period, which may adversely affect the activities of the enterprise. Therefore, it is necessary to find out the reason to prevent negative consequences in the future. The company should manage agreements with creditors and try to raise the term of payments to get free cash funds. At the same time, company should establish more

attractive deal terms with debtors. Such combination allows to decline cash conversion cycle.

Next, we need to analyze the company's solvency ratios, which measure the firm's ability to satisfy its long-term obligations and are closely tracked by investors to understand and appreciate the ability of the business to meet its long-term liabilities and help them in decision making for long-term investment of their funds in the business. [37] The level of liquidity of assets also depends on the enterprise`s sphere of activity. (Table 2.4).

Table 2.4

Liquidity analysis during 2014-2019

Indicators	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018	31.12.2019	Variances				
							2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Cash Ratio	0,28	0,62	1,34	1,25	0,91	0,59	0,34	0,72	-0,09	-0,34	-0,32
Current Ratio (Working capital ratio)	0,91	1,06	2,11	2,36	1,95	2,56	0,14	1,05	0,25	-0,40	0,60
Quick Ratio (Acid-test ratio)	0,34	0,65	1,36	1,25	0,91	0,59	0,31	0,71	-0,10	-0,34	-0,32

The cash ratio, which only considers cash and marketable securities, is the best indication of a company's ability to cover its short-term obligations when in an emergency. It is believed that the coefficient should be more than 0,5. [14, p 2]

At the researched enterprise this indicator conforms with standards starting from 2015. In 2014, this indicator is lower than the normative – 0,28. And in case of too low level of cash ratio there is a risk to make late repayment of debts, which can lead to further financial difficulties. In years when cash ratio is higher one, it means the company has too much free funds, which may indicate a withdrawing of capital on the formation of unproductive assets. But it should be noted that this ratio is calculated as of a specific date and cannot take into account the entire cash flow for the period. For example, it is possible that at the date of calculation, the company has not yet repaid

most of its liabilities not because of the lack of financial resources, but because the date has not matured yet. This situation negatively affects the value of the coefficient. Therefore, this ratio is not informative without comparing it with other solvency ratios. However, if there is a situation with a real surplus or shortage of cash funds, the following measures should be taken: in the case of low cash ratio, company can raise funding by taking a loan or can sell surplus assets that are the most liquid; and in case of high cash ratio, a significant part of the funds should be attracted in production and marketing activities or additional investments.

Current ratio is a financial ratio that shows the proportion of company's current assets to its current liabilities. [1] It is believed that the coefficient should be within 1-2.

During the analyzed period, mostly indicator was in the established frames, except 2014, when the indicator was 0,91 and 2017, 2019 where the coefficient was 2,11 and 2,56 respectively. Deviations from the norm are not significant, which tells us about the normal state of the current liabilities coverage by the current assets.

So, quick ratio (also called acid-test ratio) is used to measure the company’s ability to pay off short term obligations without relying on inventories. [8, p 7] A value of the ratio between 0,8 and 1 is considered to be optimal.

During the analyzed period, only in 2018 ratio meets the norms: in the period of 2014, 2015 and 2019 these indicators were lower than the norm, which indicates law possibility to meet obligations. In the period from 2016 to 2017, the ratio exceeded one, which indicates low financial risks and the possibility of attracting additional resources. The high value of this indicator is a priority for banks that lend financial resources to the company. Therefore, it should be noted that in 2014-2015 this indicator had a negative impact on the credit rating of the company, and in 2016-2018 the situation improved significantly, which allows the company to freely attract financial resources if there is a lack of own capital.

One more important thing for the investigation of the financial state of the enterprise is defining of financial stability indicators (table 2.5).

Table 2.5

Financial stability analysis of the enterprise during 2014-2019

Indicators	31.12.14	31.12.15	31.12.16	31.12.17	31.12.18	31.12.19	Variances				
							2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Financial autonomy ratio	0,25	0,25	0,67	0,69	0,58	0,66	0,00	0,41	0,02	-0,11	0,08
Financing ratio	2,96	2,93	0,50	0,45	0,68	0,48	-0,02	-2,43	-0,05	0,23	-0,20
Debt ratio	0,75	0,75	0,33	0,31	0,42	0,34	0,00	-0,41	-0,02	0,11	-0,08
Own current assets ratio	-0,26	0,16	0,55	0,61	0,60	0,70	0,42	0,39	0,06	-0,01	0,10

Financial autonomy ratio is calculated as the ratio of equity capital to business assets, based on the balance sheet data. Equity to Total Assets is interesting for partners, lenders, investors, and owners. Its normative value is from 0,5. [15]

In 2014-2015, the ratio was significantly below the norm, which indicates that the company can finance only a small share of assets from its own sources. It indicates high financial risks and low financial stability of the enterprise. The low share of own resources usually leads to the significant borrowings of funds for financing enterprise`s performance, but sometimes the attraction of additional resources is more profitable than the use of own resources. Let`s compare the low coefficient of financial autonomy with the coefficient of profitability. Since the return on equity in 2014-2015 was high, the company uses own funds efficiently, despite the low share of equity in the company's capital. During 2016-2019, the coefficient of financial autonomy is enough to achieve the established norms and amounted to 0,67; 0,69; 0,58; 0,66 respectively. So, during the last four years the indicator was stable and attractive for external users of information.

The financing ratio characterizes the amount of borrowed funds per unit of equity, as example the degree of dependence of the enterprise on external sources of financing [46]. It is believed that the coefficient should be less than 1.

In 2014 and 2015, this figure was 2,96 and 2,93. This value is too high and indicates incomplete use of the company's potential. In 2016-2018, the indicator was within the norms, which indicates an effective policy of the company aimed at improving the efficiency of financial resources.

The debt ratio is a financial ratio that measures the extent of a company's leverage and can be interpreted as the proportion of a company's assets that are financed by debt. [9]

At first sight it seems that in 2014 -2015 years share of borrowings was high. But in fact, our borrowings include liabilities before suppliers, budget and workers that is not a real debt of the company for which it should pay interest. Besides, this ratio has a tendency to decline and in 2019 equals 0,34.

Own current assets ratio shows what part of equity is used to finance current activities and is invested in working capital, and what – capitalized. Optimal level of this indicator is 1. [49]

Here we observe growing trend of own current assets ratio. In 2019 ratio has the highest level – 0,7. It means that after financing of non-current assets, company has own capital for providing 70% of current assets.

To find suitable value drivers we should analyze profitability of the company with the help of profitability ratio. During the analyzed period, the return on assets varied greatly (Appendix I)

It was the lowest in 2014, 2018 and 2019 – 8,2%, 7.9% and 8,4% respectively. Such indicators are rather lower in comparison with other years. The highest level of return on assets was reached in 2016 – 41,8%. Due to the very low return on assets in 2018, it is necessary to reduce the number of assets with the lowest efficiency. For more detailed understanding of the situation, we should consider the dependence of return on assets on changes in the ratio of current assets and changes in return on turnover using the DuPont model:

$$ROA = EBIT\ margin * Asset\ turnover$$
$$\Delta ROA(\Delta Asset\ turnover) = \Delta Asset\ turnover * EBIT\ margin$$
$$\Delta ROA(\Delta EBIT\ margin) = Asset\ turnover * EBIT\ margin \quad (2.1)$$

[created according to source 39]

So, let's calculate the change in return on assets due to the next factors:

$$\Delta ROA(\Delta Asset\ turnover) = 0{,}12 * 2{,}7 = 0{,}32\%$$
$$\Delta ROA(\Delta EBIT\ margin) = 3{,}12 * (-1{,}9) = (-5{,}93\%)$$

The decrease in return on assets by 5,3% in 2019 compared to 2017 was caused by an increase in the turnover ratio by 0,32% and a decrease in return on turnover by 5.93%. The decrease in the return on assets was caused by a decrease in operating profit. This is due to a significant increase in operating expenses. Operating expenses are too high – about 98% of sales. Because of such level of operating expenses profitability of the company is not high. Therefore, these costs should be optimized to increase efficiency and increase operating and net profit.

After identification of financial drivers, we should define what are the most important for value creation and what drivers should be used for controlling of the enterprise.

The most significant driver for value creation is return on invested capital. For analyzed enterprise ROIC equals ROE as company hasn`t debt at all. As we see from profitability analysis, return on equity has declined to 10,5% in 2019. It means that value of the company for potential investors is declining. In this way market value added are going to decrease as well. For understanding what factors have the biggest influence on this indicator, let`s calculate 3-factor DuPont model:

$$ROIC = EBIT\ margin * Asset\ turnover * Financial\ leverage$$
$$\Delta ROIC(\Delta Asset\ turnover) \quad (2.2)$$
$$= \Delta Asset\ turnover * EBIT\ margin * Financial\ leverage$$

$$\Delta ROIC(\Delta EBIT\ margin) = Asset\ turnover * \Delta EBIT\ margin * Financial\ leverage$$

$$\Delta ROIC(\Delta Financial\ leverage) = Asset\ turnover * EBIT\ margin * \Delta Financial\ leverage$$

[created according to source 3]

So, let's calculate the change in return on assets due to the next factors:

$$\Delta ROIC(\Delta Asset\ turnover) = 0{,}12 * 2{,}7 * 1{,}46 = 0{,}47\%$$

$$\Delta ROA(\Delta EBIT\ margin) = 3{,}12 * (-1{,}9) * 1{,}46 = (-8{,}65\%)$$

$$\Delta ROA(\Delta Financial\ leverage) = 3{,}12 * 2{,}7 * 0{,}01 = (0{,}08\%)$$

According to our calculations, the biggest influence has operational margin. It means that during the forecasting process we should pay attention at the ways of EBIT margin improvement.

One more important financial driver is debt to equity ratio. At the analyzed enterprise equity is 100%. It means that financing of the company`s performance is made only by own capital. The influence of debt and equity shares is high. Changing this indicator, market value added can become quite different.

All other financial indicators that were investigated in this chapter, management should use to control company`s activity to understand whether all steps were made in the right way.

2.3 Value driver's analysis

Taking into account the previous analysis of value drivers in connection with forestry industry investigation, we have defined such value drivers that we suppose are the most appropriate to forestry industry: sales growth, EBIT margin (not EBITDA because depreciation factor in the forestry industry reflect the forest reproduction

policy, which is of particular economic importance, is also of great environmental and social importance. So we cannot exclude depreciation factor), net profit margin, cost reduction, capital structure, cost of capital, capital investment, customer diversification, size of potential market (area if forestry land) and barriers for entering (figure 2.1). Our proposition is based on the forestry industry analysis, conducted in the papers of Ukrainian scientists [50, 6] where sales, EBIT, costs, net profit etc. are used as the most appropriate indicators of the forest industry performance.

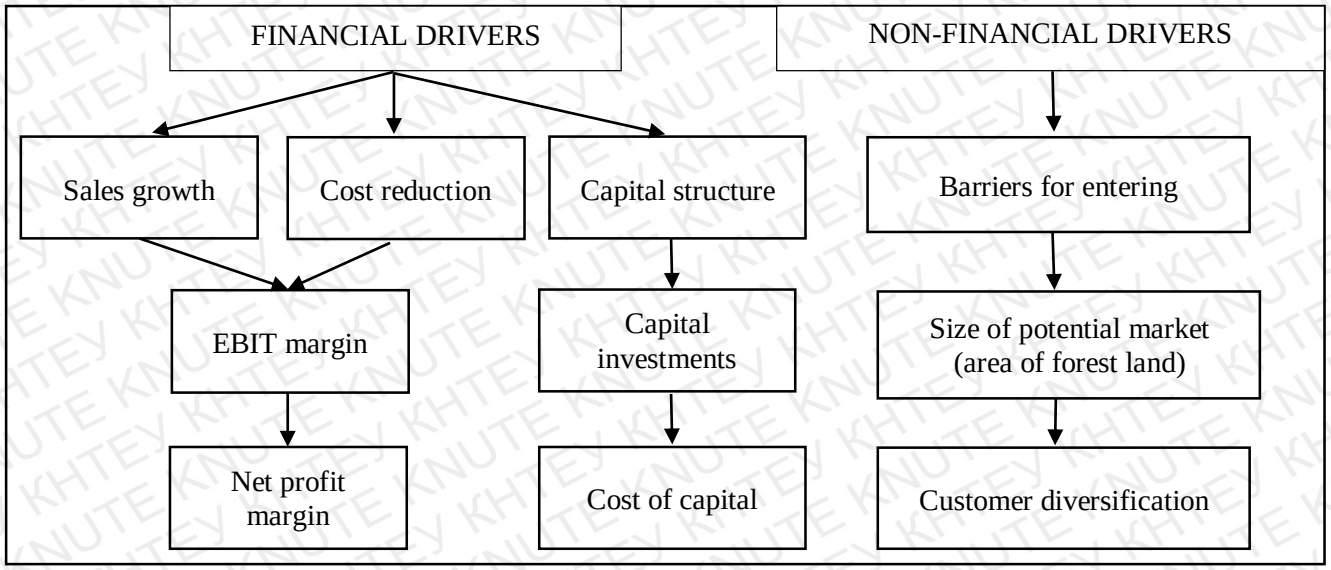

Figure 2.1 Value drivers for the forestry industry. [18, 2, 28, 6,50]

Sales growth is the most often used and meaningful factor in all industries and has an influence on all other financial drivers. Therefore, sales growth is a cornerstone driver of the value tree. By means of sales increasing, management has the ability to increase the number of customers and build a well-known brand that leads to rising of goodwill and in such way – the company`s value increasing.

Customer diversification is an important non-financial driver which is mostly under the influence of sales decisions. The company should understand that expansion of the market should be accomplished by a widening of the consumer network. This can not only raise the sales but also reduce risks. It also should be noted that the size of

the potential market has a significant role in the rising of sales. In the forestry, we can`t hope on the market growth as the industry has limited borders.

The EBITDA margin is also a widely spread driver, but the numbers differ for all industries. Taking into account our remark about forest reproduction policy, we propose to use EBIT margin in forestry enterprises because it can be compared with other firms without consideration of capital structure and level of real investments that can vary depending on the management systems at the enterprises. From the other hand, net profit margin takes into account all types of activity and shows situation in a specific company. It means that such indicator is not truly comparable with competitors but has a huge influence on investors decision.

Increasing of the company`s marginality depends on the effectiveness of the cost reduction program. As the company can decrease its costs without losses in production by supporting effective management strategy, marginality is supposed to become higher.

Another key driver for the forestry industry, as for any other industry, is capital structure. The companies need to find the optimal level of debt and equity that will rise the financial leverage of the enterprise. For the analyzed industry, this level is higher comparing with others from production and agrarian sector because of the lower level of taxation that creates an additional advantage for investors.

The cost of capital is one of the most important drivers that is influenced not only by the internal situation of the company but also the economic, political, and social environment. For the companies which operate in the countries with an unstable economy, there is a risk of the high cost of capital that demands very high returns on invested capital. Ukraine comprises countries with an unstable economic situation. So management of the companies needs to determine the cost of capital very carefully considering all risks existing in nowadays economy.

The value of the company highly depends on capital investments. Only investments in current performance or in rising of the business lead to additional value creation.

Barriers for entering is identified as one of the most appropriate drivers. It is caused by the strong state regulation. There is a huge amount of prohibitions and requirements in this sphere that create sharp barriers for entering on the market.

Based on the drivers mentioned above, we noticed that the key drivers are invested capital and cost of capital. All others are outgoing from these two and supplement them. By identifying the links between these drivers, we can see the impact of each driver on the overall value of the business.

Return on invested capital (ROIC) is under the influence of operating margin and capital turnover while the weighted average cost of capital depends on the cost of equity and cost of debt. Besides, WACC and ROIC must be adjusted for the tax rate. The difference between the return on invested capital and the weighted average cost of capital forms the added value of the company (figure 2.2).

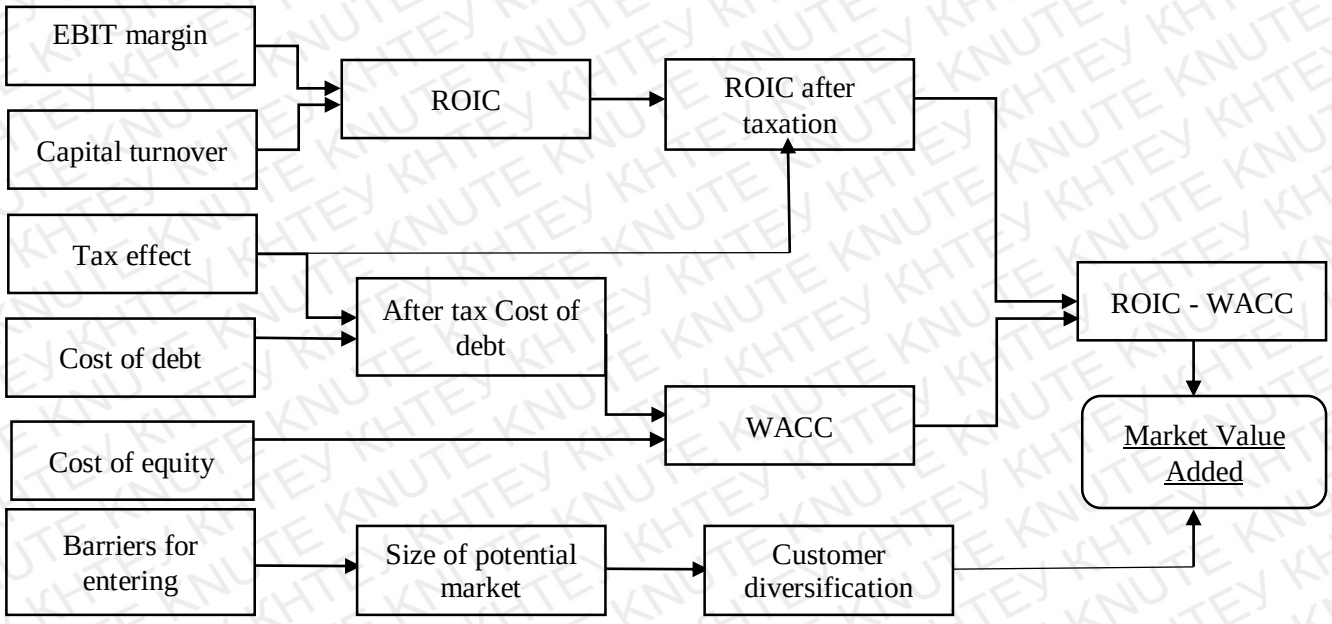

Figure 2.2 Value driver tree for the forestry industry. [created by the author]

It is worth to admit that the most dependable driver on the company`s performance is return on invested capital. And it means that the company can fully influence on this indicator by its actions. To understand how the company can impact on the driver, we should define the factors from which ROIC can change its value. (figure 2.3)

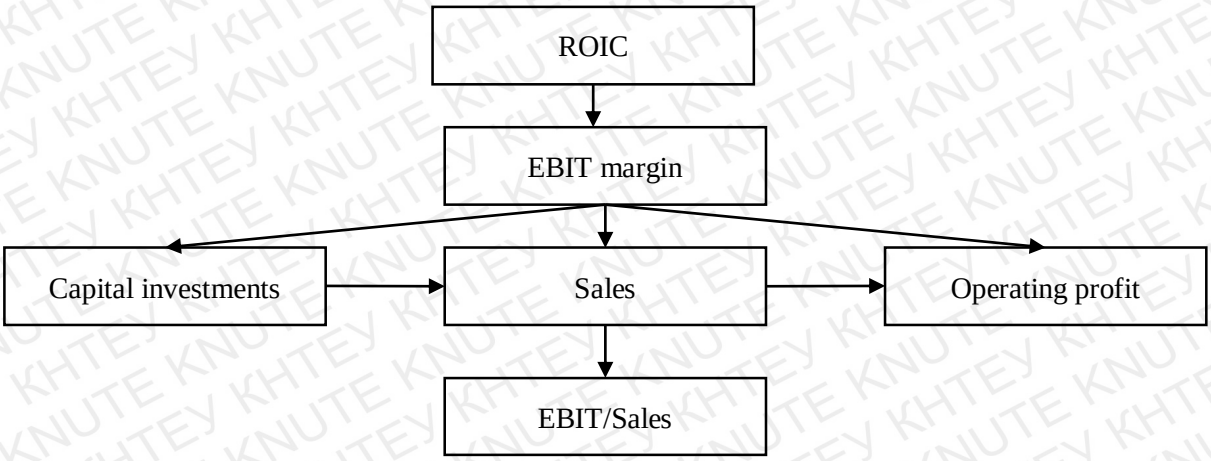

Figure 2.3 ROIC components. [created by the author]

From the scheme above we investigated that the biggest influence has such indicator as operational margin. The best way to improve EBIT is to make capital investments that will raise sales. In this way relation of operation profit to sales is going to increase that raise company`s value.

CHAPTER 3
WAYS OF VALUE DRIVER`S IMPROVEMENT

Added value is created only when companies get a return on invested capital that exceeds the cost of capital. The logic in this case is the following: the return on investment must be higher (or not less) than the value of its financing. [25, p 63] It is the main indicator which shows that company can generate profits. For this reason, one of the most important financial drivers is weighted average cost of capital. To calculate it, we should start with the understanding of WACC essence.

The cost of capital (WACC) is the company`s cost of using funds provided by creditors and shareholders. [31]

We see that cost of capital combines the cost of using funds for both internal users – shareholders and external – creditors. Cost of equity shows how expensive the usage of the own resources is but cost of debt shows how expensive the usage of the borrowed resources is. These are the main two components of the cost of capital.

To define the cost of capital we should make 3 main steps:

1. to find the share of each capital type
2. to define the cost of each element (cost of equity and cost of debt)
3. to calculate the weighted average of financing sources

Based on the responses of practitioners, the most popular model for cost of equity estimation is CAPM, both in the US and in the Western Europe. [26, p 2]

The choice of the model is understandable. CAPM includes all factors that are needed to estimate possible return on the investor`s capital. As the main users of the investment reports are investors, CAPM model is the most understandable. It includes the minimum return which is called risk-free rate and other premiums depending on sphere of activity and geographical region. These other premiums are built according to the market investigation that gives a reason to believe in the faithfulness of the estimation.

Modern financial theory of CAPM is based on two basic assumptions; the first one is that stock markets are efficient and full of competition, the second one is that investors in these markets are rational investors and seek to maximize the yield within the acceptable risk limits. [24, p 183]

The second assumption is absolutely truly about the forestry industry in Ukraine but about the first there are some questions. Can we use CAPM for the countries without organized and developed stock market or should we try to find more appropriate model? As much as all methods of cost of equity valuation are built on the principles of stock market we can`t find more appropriate model but we can transform our CAPM to the existing conditions.

CAPM offers powerful and intuitively pleasing predictions about how to measure risk and the relation between expected return and risk. [12, p 25] This model, the same as others, is based on the market risk of portfolio. But how can we estimate this risk for private or state companies that are not participants of the stock market. This is an important question we`ll try to decide here. It is a big problem for almost all enterprises in Ukraine, as the country hasn`t free and developed stock market at all.

To understand how we can implement the CAPM model for our enterprise, firstly we should define the components of this model:

$$Ra = Rrf + [Ba * (Rm - Rrf)] \quad (3.1)$$

where:

Ra = Expected return on a security

Rrf = Risk-free rate

Ba = Beta of the security

Rm = Expected return of the market

Note: “Risk Premium” = (Rm – Rrf)

The model includes risk-free rate, beta and equity risk premium that is the difference between market risk premium and risk-free rate. [7]

Let`s continue with more detail investigation of each component. The risk-free rate has two main requirements to define it as free of the risk:

1. can be no default risk;
2. can be no reinvestment risk.

All over the world there are only one type of securities which can be free of risk – government bonds. It is because government of a country print and control currency. But some countries include default spread in the calculation of risk-free rate. If we make calculations in national currency, we should exclude this default spread.

To achieve the second requirement, we should use for calculation government bonds with the longest maturity period and if it is possible, with zero coupon.

According to our calculations, risk-free rate is equal 1,64%. The number was taken from Bloomberg as one of the most reliable financial source. We used 30-year US Treasury yield bond to exclude risk of reinvestment. Besides, we know for sure that US government bonds haven`t default spread.

Equity risk premium is a return that investors are waiting to get over risk-free rate. This return is based on the historical data. Because of that, we can`t claim that equity risk premium is absolutely true. So cost of equity is approximate value.

To define the market premium, we`re going to understand why all these models use stock market returns to define market premiums. The answer is simple – we can easily find any return parameters on the stock market platforms. So the reason is that stock market is opened and available source for everyone. Based on this, we should find the biggest opened source where all indicators of forest industry are lightened. The only source in Ukraine is the State Agency of Forest Resources of Ukraine. There we can find financial data of all Ukrainian public forest enterprises. The problem is that on the stock market returns and stock prices are published every day but the State Agency of Forest Resources of Ukraine published only yearly reports. In practice, yearly reports

don`t show the real fluctuations of the returns. Taking this fact into consideration, the only way to define the equity risk premium is to find average level for the country. Why for the country? Because the equity risk varies according to the obstacles of getting profits in specific country which is due to economic, political, social and other factors that have influence on the investor`s profit. Such kind of information is published by Damodaran on his own website. According to Damodaran, equity risk premium equals 5,2%.

Beta is a measure of the volatility—or systematic risk—of a security or portfolio compared to the market as a whole. [4]

For measuring the volatility of the company we should compare company returns to the market returns. One more variant is to find the average beta for the forest industry. This data is also published on the Damodaran`s site. So beta for the forest industry equals 1,25. It shows that the forest industry is more volatile than the market. It means that some changes on the market will have more influence on the returns of the forest industry than on the returns of the whole market. If changes are positive, investors will get more profits than the average market. But the same situation will be with the losses.

For defining weighted average cost of equity firstly, we should find two options – cost of equity and cost of debt. Forest industry in Ukraine is unique in the this as all enterprises use only equity capital. It is an evidence of ineffective management strategy on the forestry enterprises or its absence at all.

To define the real cost of capital rate, we`ll use existing debt to equity ratio. But for improving the situation we`ll calculate the cost of equity using average debt to equity ratio for forestry industry.

To define the sovereign risk of Ukraine we should find yield to maturity of Ukrainian Eurobond and US Treasury notes. Yield to maturity of Ukrainian Eurobond we have found on the official web-site of the ministry of economy. For now, this information is opened and free and easily to access. So we`ve discovered that YTM of

Ukrainians Eurobond is 3,6% in USD and YTM of US Treasury notes is 0,84%. In the result we have gotten 6,6% of sovereign risk.

Finally, we`ve got the cost of equity equal 14,77%. But this rate was calculated for USD and we need to transform it for UAH:

$$(1 + \text{Re US\$}) * (1 + \text{CPI UA}) / (1 + \text{CPI US}) - 1 \quad (3.2)$$

where,

Re US – cost of equity in USD

CPI UA – forecasted inflation in Ukraine

CPI US – forecasted inflation in US

After the adapting of the cost of equity to Ukrainian currency, we`ve got 17,9%. (Appendix J)

There are one more way to calculate weighted average cost of equity – calculate all components in UAN from the very beginning.

We can use risk-free rate of Ukrainians Eurobond issued in UAH. The interest rate of the most recently issued Eurobond is 9,79%. It is the rate for 7-year bond issued in 28 of January 2020 with the maturity in 26 of May 2027. But if we remind the criteria for risk-free rate, we understand that this rate in UAH has a default spread. For the correct calculations we should exclude it. But what will be the default spread for Ukraine? It should be calculated according to the credit rating of the country. The Moody`s agency gives to Ukraine Caa1 score. So, according to credit rating, Damodaran defines the default spread at the level of 6,27%. Now we`ve got risk-free rate that is free of default spread as 3,52%.

We can use the same beta as it not regarding to any currency and it is just a coefficient. So, beta is equal 1,25.

To define equity risk premium, we should take it from our previous calculation and convert it into UAH with the help of inflation rates of US and Ukraine:

$$(1 + YTM\ UA) / (1 + YTM\ US) - 1 \quad (3.3)$$

[created according to the source 27]

After using this formula, we`ve got 8,08% equity risk premium. Sovereign risk of Ukraine was take from Damodaran base because this type of premium is already adapted to national currency in that base.

Finally, we`ve achieved 18,69% cost of equity. According to this method, cost of equity is a little bit higher but close to the previous method. This is because we use different base and approaches for calculation. Besides, as it was noted previously, only one right number of the cost of equity or cost of capital doesn`t exist. So, according to different methods of calculation, cost of equity is in the frames between 17,9% and 18,7%.

In our case, as the company doesn`t have borrowed capital, cost of capital is equal cost of equity.

But we`re going to show how usage of borrowed capital can improve financial indicators of the company and rise the company`s value. So we are going to demonstrate how strong influence it has. For this reason, we can find the average level of the debt share in the forest industry. In Ukraine we won`t find state enterprises with the borrowed capital in contradistinction to European and US countries. For this reason, we can take share of borrowed capital that is usually used in US as this part of the world has the most developed system of value drivers and forest industry at all. Fortunately, we can find this percentage in the opened sources and it is about 30%. [10]

Cost of debt includes risk-free rate and default spread defined by the credit rating of the company. But in Ukrainian banks, real interest rate for legal entities is higher than we`ll get using the formula noticed above. So it`ll be more appropriate to use real interest rate of borrowings for legal entities. The average level is about 14%. [43] One

more action is to adjust this rate on the effective tax rate for enterprise – 18%. As a result of calculation we`ve got 11.48%.

The last step it to find weighted average cost of capital:

$$WACC = g * rd + (1 – g) * re \quad (3.4)$$

where,

WACC – weighted average cost of capital

g – share of debt

rd – cost of debt

re – cost of equity

According to the formula cost of capital (using cost of equity by the first method) is:

$$WACC = 0,7*17,9\% + (1-0,7) * 11,48\%$$

$$WACC = 15,97\%$$

According to the formula cost of capital (using cost of equity by the second method) is:

$$WACC = 0,7*18,7\% + (1-0,7) * 11,48\%$$

$$WACC = 16,53\%$$

On the basis of our analysis we can conclude that usage of borrowed capital has a positive influence on the value of the company. It is understandable because equity is always more expensive for the enterprises than borrowed capital. The only reason, why forest enterprises don`t use loans for their activity, is that they don`t have effective management system which can analyze effectiveness of borrowed capital usage and how it can influence on the market value of the company. Market value of the company is very important for investors as it shows the real market price of the company. We can`t just look at the assets and set a price of the company. The approach is far deeper. Exactly this approach which includes value determination, is one of these

which show the real value of the company and is valuable for investors to make a decision.

After the clarifying of financial drivers, we should pay not less attention to the non-financial drivers. It is a crucial thing to understand how strong influence non-financial drivers have on the company's activity and how they can change it.

The main three non-financial drivers are barriers for entering, size of the potential market and customer diversification.

Forests are recognized as an integral part of national economies, providing a wide range of production inputs, environmental goods, food, fuel, medicines, household equipment, building material and raw materials for industrial processing. Forests support agriculture by providing materials for farm implements, harvesting and transportation equipment, crop storage containers and dryers as well as fuel for crop processing. [29] As we see forestry industry has a strong influence on the overall economy of each country and making a decision about type of property can even lead to the changes in a political situation. Unfortunately, Ukrainian government haven't understood yet the urgent need of improving efficiency of the forestry enterprises. But we`ll hope the investigation of value drivers become the first step to change it.

According to the Land and Forest Codes, the forests of Ukraine can be in state, communal and private ownership. The vast majority of the forests are state-owned. About 1.3 million hectares (13%) of forest land plots were included in communal ownership. The share of privately owned forests is less than 0.2% of the total forest land area. [42, p 8] Article 12 of the Forest Code of Ukraine says that individuals and legal entities of Ukraine may, free of charge or for a fee, acquire closed forest lands with a total area up to 5 hectares. This area may be increased in the case of inheritance of forests in accordance with the law.

Citizens and legal entities may create own forests on the land plots of degraded and unproductive lands acquired in accordance with the established procedure, without limiting their area.

Besides, the one more restriction is the prohibition on the selling of the lands in Ukraine. Even when a legal body or a private person are minded to buy the lands which they can transform in the woodland, this restriction becomes a barrier. The situation can become better in the nearest future because of the recently issued law № 2178-10 "On Amendments to certain legislative acts of Ukraine concerning the circulation of agricultural Lands". But from June 2021 to June 2023 there will be restrictions on the purchase of land - no more than 100 hectares in one hand. And in 2023 the limit will be - up to 10 thousand hectares in one hand. Until January 1, 2024, only individuals of Ukraine will be able to buy land. From January 1, 2024 - also Ukrainian legal entities.

One more barrier for entering is the amount of investing. The forestry is one of the industries that demands the huge investments. It includes purchasing of the territory, high-cost equipment, raw materials for planting. One more thing is the entrepreneur should recover plantation of trees that he deforests for trading purposes. In addition, an investor should understand that it is a funds with a long-term return, especially when you`re buying lands and only start to plant trees.

As we see from the information noted above, the barriers for entering are high and mostly on the legislative level. These barriers the companies can't overcome but can find a few legal ways to enter the market.

The second non-financial value driver is the size of potential market. In the case of forest industry our size is the area of forest land. According to the report of the State Agency from the Forest Resources of Ukraine, total forest area of Ukraine is 10,4 million hectares. The forest covers the 15,9% of Ukraine`s territory. But despite the small area planted by trees, Ukraine ranks 9th in Europe in forests area and 6th place in terms of wood stocks. So it has a great potential for trading. During the year, the forests of Ukraine grow an average of 35 million m3 of wood. There is a gradual increase in stock, which confirms the significant economic and environmental potential of our forests. One more factor that says us about the development of the forest industry is the infrastructure improvement. In 2019, the enterprises of the industry performed

construction works on the roads, which is 68% of the planned volume. The process of the road construction will decrease the costs for transportation of the forest products, make it faster and in this way raise the profitability of the companies. [47, p 24]

We can`t hugely change the amount of man-made forest but the area for investing is enough.

The third non-financial value driver is customer diversification. It is important to stay stable and have a possibility to react the changes which happened around the world.

Today small enterprises usually produce a narrow range of products that covers only special groups of customers. For this reason, such enterprises are hugely dependent on the customers which can have a big influence on the company`s income. But fortunately forest industry produce a unique type of raw materials that gives one more competitive advantage for such kind of enterprises.

Customer diversification can minimize existing risks of the company and mitigate the potential risks. Nowadays, main Ukrainian customer of forests products is an internal market which includes enterprises and individuals. Forest for the individuals is a product of ultimate use. Enterprises use goods of forestry for the further reshaping. For this reason, companies need only high quality products. As a result, many raw materials of the forestry are not used and stay in storage during a long period of time. This process requires additional costs that are high. Besides, deterioration is often happened because of a long storage that brings huge losses. A long storage caused by the prohibition to export forestry raw materials. For the stopping of losses from the deterioration, companies can diversify client`s base inside the country. As example, forestry enterprises can establish long-term contracts with other firms which are interested in these raw materials for the production to prevent the losses in the future. One more solution is creation of own processing plants that has own equipment which gives a possibility to produce goods of ultimate usage. In this way companies should understand that investments will be large and long covered.

After defining both financial and non-financial drivers, we can create value driver tree in different variations. The first two variants are value driver's trees that don`t include cost of debt and show the current situation of the company. On the schemes we can see that market value added is going to be negative as the cost of capital is higher than return on invested capital. (Appendix K)

Two more variants of value driver trees differ because of WACC that includes cost of debt with the share on the average industry level. Here we can see the influence of the borrowed capital usage on the market value added. The usage of borrowed capital increases market value. But in our case, difference between ROIC and WACC stays negative but better than without usage of loans.

To calculate market value of the listed company, we usually multiply price of shares outstanding on their number. But in our case we have not listed company. So we use another approach according to McKinsey recommendation:

$$\text{Economic profit} = \text{Invested capital} \times (\text{Return on invested capital} - \text{Weighted average cost of capital} \quad (3.5)$$

Economic profit is a short-term financial performance measure that is tightly linked to value creation. It measures the gap between what a company earns during a period and the minimum it must earn to satisfy investors. Maximizing economic profit over time will also maximize company value. [23]

This approach is suitable for such companies that are private or state and are not listed on the stock market.

According to this approach we`ve got economic profit:

Economic profit1 = -7,4% * 14112 = -1044 thousand UAH

Economic profit2 = -8,2% * 14112= -1157 thousand UAH

Economic profit3 = -5,5% * 14112= -776 thousand UAH

Economic profit4 = -6,03% * 14112= -851 thousand UAH

where,

economic profit1- profit in which used current cost of capital calculated by the first method

economic profit2 - profit in which used current cost of capital calculated by the second method

economic profit3 - profit in which used adjusted cost of capital (adjusted by borrowed capital) calculated by the first method

economic profit4 - profit in which used adjusted cost of capital (adjusted by borrowed capital) calculated by the second method

Market value added shows the company`s ability to increase its value. A negative MVA means that management's actions have decreased and have changed the value of the capital contributed by investors. So, book value of the company that is equal to own capital and is positive, tell us only about the size of investment. From the other side, market value added shows how effective invested capital is managed. And in our case, negative value added gives us understanding that management of the company is ineffective. Total market value consists of the invested capital (for investigated company – only own capital) and market value added. As market value added of investigated company is negative, total market value becomes lower because of ineffective management which reduces the value of invested capital by their actions or inactions.

To achieve positive market value added, we should increase return on invested capital. As world's forestry market is developing in conditions of oversupply, investments should be directed not to the expansion of capacities for the production of traditional wood products, but to create innovative projects for products with improved characteristics. Investment in raising capacity of the enterprise through improving of production and implementing new types of products should raise effectiveness and profitability of invested capital. Besides, one more advantage of investing in capacities is optimization of work process that decrease administrative and other operating costs.

To see how fast company can do it, let`s make a forecast of Profit and Loss Statement and Statement of financial position. (Appendix L-N)

For six months of this year (2020), net sales revenue of the forest industry compared to the same period in the last year, decreased by 7%, or more than 500 million UAH. Forestry enterprises have not sold firewood outside the borders of Ukraine for more than a year. More than a million cubic meters of wood have accumulated in the warehouses of enterprises, where the share of firewood is 70%. The accumulation of firewood is due to the lack of demand in the domestic market and the ban on their export. [48] According to this information, we suppose that company`s sales growth will be slower by 7% in 2020 and in 2021 will achieve previous level. Besides, raising of capacities gives additional economy that is represented in operational costs declining. (Appendix O) Now we can see that in 2021 company can achieve desired level of profitability. (table 3.1)

Table 3.1

Dynamics of ROIC and EBIT margin during 2018 -2021

Year	2018	2019	2020	2021
Return on invested capital	13,0%	12,3%	12,0%	23,2%
EBIT margin	2,2%	2,7%	2,7%	5,4%

Due to expanding capacity and product diversification, the company can achieve 23,2% of return on invested capital. As we see from the table above, the main factor of ROIC increasing was operational margin.

Positive effect we can see also on the market value added in 2021. (Appendix P) The difference between ROIC and WACC is positive and market value added (in our case economic profit) has also positive value:

Economic profit1 = 2,76% * 18521 = 511,2 thousand UAH

Economic profit2 = 1,96% * 18521 = 363,0 thousand UAH

So, the company has all resources to achieve positive market value added. According to our calculations, company can do it already in 2021.

CONCLUSIONS AND PROPOSALS

Key value driver`s analysis is the initial part of company`s value creation. It is a powerful financial instrument to show companies what indicators have the greatest influence on the company`s value.

The main goal of this scientific work was to find the ways of raising company`s market value in the forest industry. To achieve this, we have made some important steps: investigation of the forest industry to understand the necessity of value driver`s system implementation, identification of value drivers that are suitable for forest industry, calculation of financial value drivers, defining the impact of non-financial value drivers, estimation of market value added according to different methods of calculation and finding of the ways to raise market value added.

Investigation of the forest industry shows that companies work ineffective. And the main reasons are undeveloped internal market that today is the biggest source of sales, lack of reforms and state ownership that uses ineffective management system. Besides, as the reformation process has already started from 2020 and changes are going to be established in the nearest future, it is an urgency for value driver`s system creation at the forest enterprises.

After investigation of value drivers which are used in different spheres, we defined the most appropriate for forest enterprises. Moreover, we divided them into financial: sales growth, EBIT margin, net profit margin, cost reduction, capital structure, cost of capital, capital investment and non-financial: customer diversification, size of the potential market, and barriers for entering. From these drivers the value drivers tree was created. It became the frame for the further investigation.

In order to create value driver`s tree, we`ve calculated all financial indicators in 2019 and have investigated the influence of the non-financial drivers. As a result, we have got negative market value added. This has become a signal for improving value driver`s system at the enterprise.

The biggest impact at the market value added had cost of equity and EBIT margin as financial drivers. It was determined that from non-financial drivers the most forceful were customer diversification and legislative barrier for entering.

Cost of equity was calculated by two methods. According to the first method calculation was made in US dollars using US rates. And only then the result was transformed into UAH with the help of relation between US and Ukraine forecasted inflation rates. The second method was used to approve the faithfulness of the first. According to the second method, Ukraine ranked premiums was used. The results we`ve got are close that proves the accuracy of calculations. Cost of equity is the factor that can`t be hugely improved by the company as it includes country risk and depends on economic situation in the country. Thus the company can improve its EBIT margin because it is fully dependable on company`s performance and decisions. To improve operational margin of the company we should improve revenues. For this reason, it was proposed to expand capacities that gives the possibility to produce new types of products. Besides, usage of new equipment is going to decrease some operational costs. One more advantage of this process is diversification of customer base.

The process of investing in new capacities is high priced. And firstly, we look at the free funds to meet the financial requirements. At the end of 2019 company had almost 4 million UAH. It is enough for starting of capacity improvements. But in the case of financing lack, we analyzed the liquidity ratios that is highly important for external creditors. All liquidity indicators tell us about high liquidity. It allows to attract additional funds for supporting of investment activity.

After defining the ways of financial performance improvement, we have forecasted quantitative impact of this changes on the EBIT margin. To value this influence we have created forecasted Statement of financial position and Income Statement. It showed that we can achieve desired level of operating margin already in 2021.

On the basis of that, return on invested capital which cover weighted average cost of capital can be achieved in 2021. And as a result, market value added will be positive.

To conclude, our investigation has shown the urgency of the value driver`s implementation. The biggest advantage of it has shown on the achieving of positive market value added. But management should also pay attention on the process of implementation and examine hardly how to make it correct.

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APPENDICES

Appendix A

Table A.1

Dynamics of current assets of the Slovechansk forest farm AIC during 2014-2019

Indicators	Volume, thousands					
Current assets	2014	2015	2016	2017	2018	2019
Inventory	3606	3915	3998	5563	8435	11555
growth rate, %	x	108,57	102,12	139,14	151,63	136,99
working inventory	661	628	1005	910	1225	x
growth rate, %	x	95,01	160,03	90,55	134,62	x
goods in process	2687	2918	2531	4356	5986	x
growth rate, %	x	108,60	86,74	172,11	137,42	x
finished goods	251	369	462	297	1224	3468
Accounts receivables:						
for goods and services	446	392	117	29	29	29
growth rate, %	x	87,89	29,85	24,79	100,00	100,00
for advances	x	x	4	54	78	x
growth rate, %	x	x	x	1350,00	144,44	x
for payments with budget	69	406	x	11	12	151
growth rate, %	x	588,41	x	x	109,09	1258,33
including from profit tax	x	393	x	x	x	40
growth rate, %	x	x	x	x	x	x
other accounts receivables	131	242	329	569	643	1468
growth rate, %	x	184,73	135,95	172,95	113,01	228,30
cash&equivalents	1906	7164	7775	7120	8080	3949
growth rate, %	x	375,87	108,53	91,58	113,48	48,87
cash	6	8	x	6	10	x
growth rate, %	x	133,33	x	x	166,67	x
bank accounts	1900	7156	7775	7114	8070	x
growth rate, %	x	376,63	108,65	91,50	113,44	x
other current assets	137	145	41	91	95	94
growth rate, %	x	105,84	28,28	221,95	104,40	98,95
Total current assets	6295	12264	12264	13437	17372	17245
growth rate, %	x	194,82	100,00	109,56	129,28	99,27

Appendix B

Table B.1

Current asset`s structure analysis of the Slovechansk forest farm AIC during 2014-2019

Year	31.12.14	31.12.15	31.12.16	31.12.17	31.12.18	31.12.19
Indicators / Current assets	%	%	%	%	%	%
inventory	57,28	31,92	32,60	41,4	48,56	67,00
working inventory	10,50	5,12	8,19	6,77	7,05	x
goods in process	42,68	23,79	20,64	32,42	34,46	x
finished goods	3,99	3,01	3,77	2,21	7,05	20,11
accounts receivables for goods and services	7,08	3,20	0,95	0,22	0,17	0,17
accounts receivables for advances	x	x	0,03	0,40	0,45	x
for payments with budget	1,1	3,31	0	0,08	0,07	0,88
including from profit tax	x	3,20	x	x	x	0,23
other accounts receivables	2,08	1,97	2,68	4,23	3,70	8,51
cash&equivalents	30,28	58,41	63,4	52,99	46,50	22,90
cash	0,10	0,07	0,00	0,04	0,06	x
bank accounts	30,18	58,35	63,4	52,94	46,5	x
other current assets	2,18	1,18	0,33	0,68	0,55	0,55
Total current assets	100,00	100,00	100,00	100,00	100,00	100,00

Appendix C

Table C.1

Dynamics of non-current assets of the Slovechansk forest farm AIC during 2014-2019

Years	31.12.14	31.12.15	31.12.16	31.12.17	31.12.18	31.12.19
Indicators	thousands					
Non-current assets						
intangible assets	46	46	46	46	46	46
growth rate, %	x	100,00	100,00	100,00	100,00	100,00
initial value	46	46	46	46	46	46
growth rate, %	x	100,00	100,00	100,00	100,00	100,00
unfinished capital investment	1149	x	x	x	x	x
growth rate, %	x	x	x	x	x	x
fixed assets	1748	3270	5155	4884	5147	4163
growth rate, %	x	187,07	157,65	94,74	105,38	80,88
initial value	5656	7656	10428	11127	12904	13566
growth rate, %	x	135,36	136,21	106,70	115,97	105,13
deterioration	3908	4386	5273	6243	7757	9403
growth rate, %	x	112,23	120,22	118,40	124,25	121,22
Total non-current assets	2943	3316	5201	4930	5193	4210

Table C.2

Dynamics of equity of the Slovechansk forest farm AIC during 2014-2019

Years	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018	31.12.2019
Elements	thousands					
Equity						
Additional capital	600	600	627	615	603	600
growth rate, %	x	100,00	104,50	98,09	98,05	99,50
Retained earnings	1734	3361	11020	12051	13074	14112
growth rate, %	x	193,83	327,88	109,36	108,49	107,94
Total equity	2334	3961	11647	12666	13677	14712
growth rate, %	x	169,71	294,04	108,75	107,98	107,57

Appendix D

Table D.1

Dynamics of liabilities of the Slovechansk forest farm AIC during 2014-2019

Years / Items	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018	31.12.2019
Accounts payables for:						
goods and services	2011	3973	1637	2176	2254	554
growth rate, %	x	197,56	41,20	132,93	103,58	24,58
payments with budget	1032	1789	1479	2440	2631	2979
growth rate, %	x	173,35	82,67	164,98	107,83	113,23
including profit tax	369	x	x	233	x	x
growth rate, %	x	x	x	x	x	x
payments for insurance	139	218	365	135	136	141
growth rate, %	x	156,83	167,43	36,99	100,74	103,68
salary payments	326	438	1355	483	529	573
growth rate, %	x	134,36	309,36	35,65	109,52	108,32
accounts payables for advances received	3366	5183	896	312	3307	2496
growth rate, %	x	153,98	17,29	34,82	1059,94	75,48
other current liabilities	30	18	86	155	31	x
growth rate, %	x	60,00	477,78	180,23	20,00	x
Total current liabilities	6904	11619	5818	5701	8888	6743
growth rate, %	x	168,29	50,07	97,99	155,90	75,87

Appendix E

Table E.1

Horizontal cash flow analysis of the Slovechansk forest farm AIC during 2014-2018

Years / Items	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
Revenue from:					
sales of goods and services	28044	45552	70654	63148	91224
growth rate, %	x	162,43	155,11	89,38	144,46
target financing	99	151	25	0	297
growth rate, %	x	152,53	16,56	0,00	x
advances from customers	1470	6922	2225	3	2995
growth rate, %	x	470,88	32,14	0,13	99833,33
interest from deposits	37	232	11	5	27
growth rate, %	x	627,03	4,74	45,45	540,00
operational rent	9	x	x	x	x
growth rate, %	x	x	x	x	x
other revenue	246	484	4026	1350	2043
growth rate, %	x	196,75	831,82	33,53	151,33
Expenditure for:					
goods and services	17002	27180	38332	28016	41757
growth rate, %	x	159,86	141,03	73,09	149,05
works	4594	7685	12670	13387	17066
growth rate, %	x	167,28	164,87	105,66	127,48
social events	2181	3676	3433	3653	4639
growth rate, %	x	168,55	93,39	106,41	126,99
tax liabilities	3608	6169	11359	14014	17377
growth rate, %	x	170,98	184,13	123,37	124,00
profit tax	544	619	1745	559	565
growth rate, %	x	113,79	281,91	32,03	101,07
value added tax	140	895	136	6060	6900
growth rate, %	x	639,29	15,20	4455,88	113,86
other taxes and duties	2924	4655	9478	7395	9912
growth rate, %	x	159,20	203,61	78,02	134,04
payment of retained advances	x	x	315	556	463
growth rate, %	x	x	x	176,51	83,27
other expenditeres	983	1802	5162	3712	11618
growth rate, %	x	183,32	286,46	71,91	312,98
Cash generated from operationals	1537	6829	5670	1168	3666
growth rate, %	x	444,31	83,03	20,60	313,87

Appendix F

Table F.1

Vertical analysis of cash flow of the Slovechansk forest farm AIC during 2014 – 2018

Years	31.12.2014	3.12.2015	31.12.2016	31.12.2017	31.12.2018
Items	%	%	%	%	%
Inflow from:					
sales of goods and services	93,78	85,40	91,83	97,89	94,45
target financing	0,33	0,28	0,03	0,00	0,31
advances from customers	4,92	12,98	2,89	0,00	3,10
interest from deposits	0,12	0,43	0,01	0,01	0,03
operational rent	0,03	0,00	0,00	0,00	0,00
other revenue	0,82	0,91	5,23	2,09	2,12
Outflor from:					
goods and services	53,17	51,59	46,39	36,22	37,86
works	14,37	14,59	15,33	17,31	15,47
social events	6,82	6,98	4,15	4,72	4,21
tax liabilities	11,28	11,71	13,75	18,12	15,75
profit tax	1,70	1,17	2,11	0,72	0,51
value added tax	0,44	1,70	0,16	7,83	6,26
other taxes and duties	9,14	8,84	11,47	9,56	8,99
payment of retained advances	0,00	0,00	0,38	0,72	0,42
other expenditeres	3,07	3,42	6,25	4,80	10,53
Cash generated from operationals	100,00	100,00	100,00	100,00	100,00

Appendix G

Table G.1

Cash flow from investing activities of the Slovechansk forest farm AIC during 2014-2018

Indicators	Years				
	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
Inflow from sales:	x	x	x	x	x
Outflow from purchase of:					
fixed assets	275	1112	2817	799	1831
growth rate, %	x	404,36	253,33	28,36	229,16
Cash from investment activity	-275	-1112	-2817	-799	-1831
growth rate, %	x	404,36	253,33	28,36	229,16

Table G.2

Cash flow from financing activities of the Slovechansk forest farm AIC during 2014-2018

Indicators	Years				
	31.12.2014	3.12.2015	31.12.2016	31.12.2017	31.12.2018
	%	%	%	%	%
Outflow from purchase of:					
fixed assets	100,00	100,00	100,00	100,00	100,00
Cash from investment activity	100,00	100,00	100,00	100,00	100,00

Appendix H

Table H.1

Business activity analysis of the Slovechansk forest farm AIC during 2014-2019

Indicators	2014	2015	2016	2017	2018	2019	Variances				
							2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Asset Turnover	3,25	2,95	4,05	3,00	3,53	3,12	-0,30	1,10	-1,05	0,53	-0,41
Asset Turnover, days	111	122	89	120	102	115	11,17	-33	31	-17,96	13,48
Current Asset Turnover	4,76	3,75	5,77	4,10	4,59	3,88	-1,02	2,02	-1,67	0,48	-0,71
Current Asset Turnover, days	76	96	62	88	79	93	20,52	-34	25	-9,24	14,30
Inventory Turnover	4,95	9,29	9,17	4,67	5,86	3,96	4,35	-0,13	-4,50	1,19	-1,89
Inventory Turnover, days	73	39	39	77	61	91	-34,03	1	38	-15,67	29,38
Accounts Receivable Turnover	46,42	32,06	157,27	83,15	104,54	39,63	-14,36	125,21	-74,12	21,39	-64,91
Accounts Receivable Turnover, days	8	11	2	4	3	9	3,47	-9	2	-0,89	5,64
Accounts Payable Turnover	4,36	3,14	6,39	4,68	5,58	10,78	-1,23	3,26	-1,71	0,90	5,20
Accounts Payable Turnover, days	83	115	56	77	65	33	32,26	-58	21	-12,35	-31,15
Operating Cycle	81	50	42	81	65	100	-30,56	-8	40	-16,55	35,02
Cash Conversion Cycle	-2	-65	-15	5	0	67	-62,81	50	19	-4,20	66,18

Appendix I

Table I.1

Profitability analysis of the Slovechansk forest farm AIC during 2014-2019

Indicators, %	2014	2015	2016	2017	2018	2019	Variances				
							2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
ROA	8,2	17,9	41,8	13,7	7,9	8,4	9,76	23,91	-28,08	-5,83	0,54
RONCA	25,6	84,1	140,4	51,2	34,3	43,0	58,55	56,28	-89,26	-16,84	8,68
ROCA	12,0	22,7	59,5	18,8	10,3	10,5	10,79	36,80	-40,78	-8,51	0,24
ROE	16,5	58,7	51,4	16,3	11,2	10,5	42,24	-7,28	-35,09	-5,15	-0,66
ROD	5,6	20,0	102,9	36,3	16,4	22,0	14,45	82,91	-66,65	-19,84	5,57
EBIT margin	2,5	6,1	10,3	4,6	2,2	2,7	3,56	4,25	-5,74	-2,34	0,47
Net profit margin	1,3	5,1	8,5	3,8	1,8	2,2	3,78	3,40	-4,71	-1,92	0,38

Appendix J

Table J.1

WACC calculation

Indicators	Results	Comments
risk-free rate, US	1,64%	30-year US Treasury yield bond [35]
market risk premium	5,2%	ERP by Damodaran
unlevered beta	1,25	by the industry according Damodaran data [33]
debt-to-equity ratio	0	According to the company`s data [11]
relevered beta	1,25	ß unl * (1 + D/E * (1 – T)
YTM to Ukrainians Eurobond	7,53%	YTM of Ukrainian US$ Eurobonds with maturity in February 2022
YTM to US Treasury notes	0,84%	YTM of 10y US Treasury notes [34]
Sovereign risk of Ukraine	6,6%	(1 + YTM UA) / (1 + YTM US) – 1
Cost of equity, US	14,77%	Rrf + MRP * ß rel + Sov. RP
Forecasted inflation in Ukraine	5%	IMF forecast 2025 [19]
Forecasted inflation in US	2,20%	IMF forecast 2025 [19]
Cost of equity, UAN	17,9%	(1 + Re US$) * (1 + CPI UA) / (1 + CPI US) – 1
Weighted of equity	1	1/ (D/E + 1)
Weighted average cost of capital	17,9%	Re UAH * We + Rd UAH * Wd * (1 – T)

Appendix K

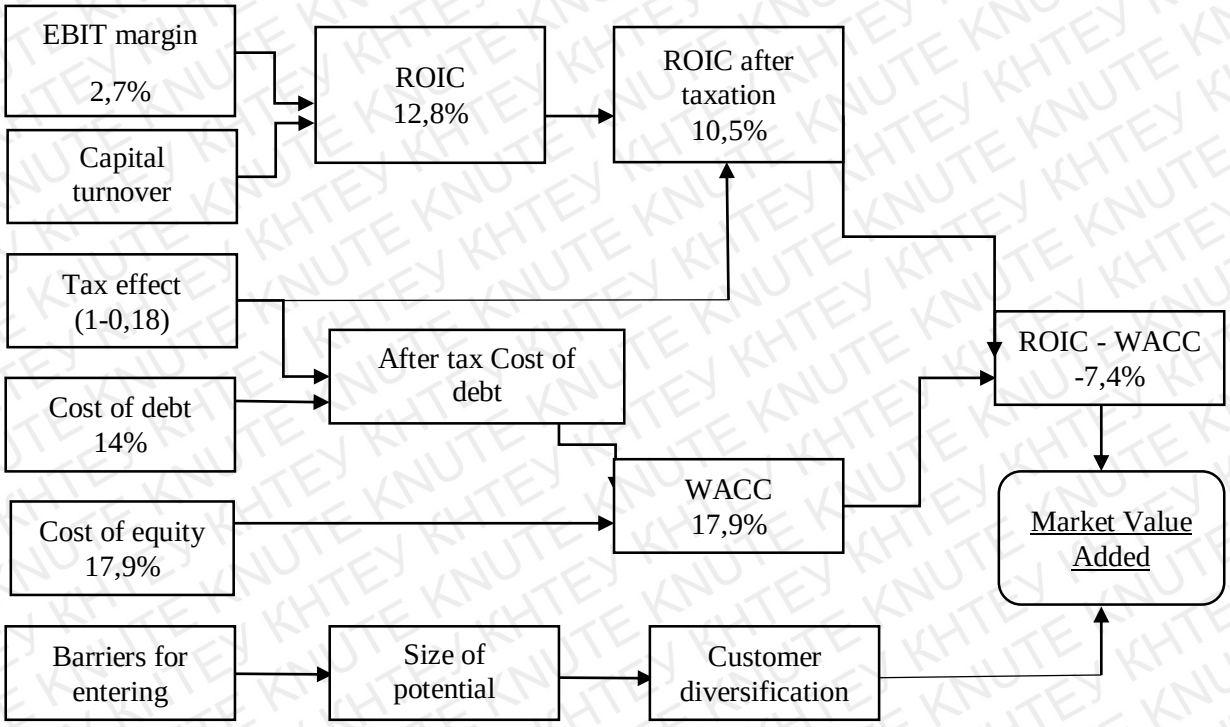

Figure K.1. Market value added (1st method)

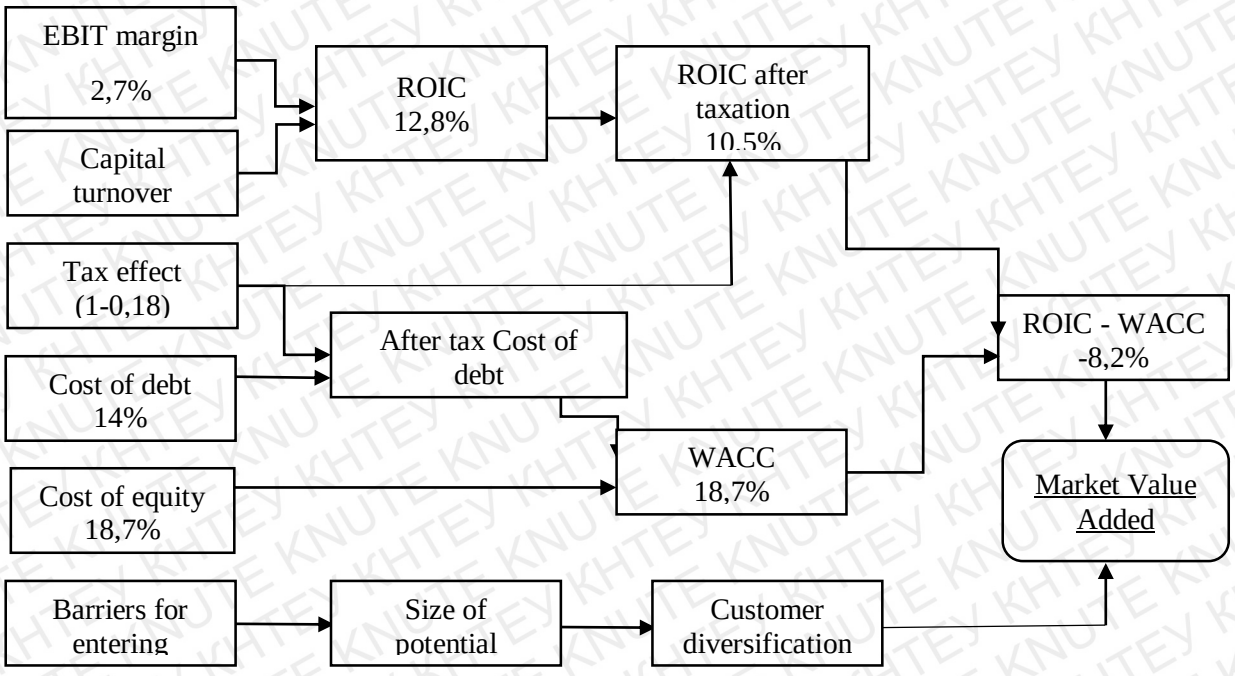

Figure K.2. Market value added (2nd method)

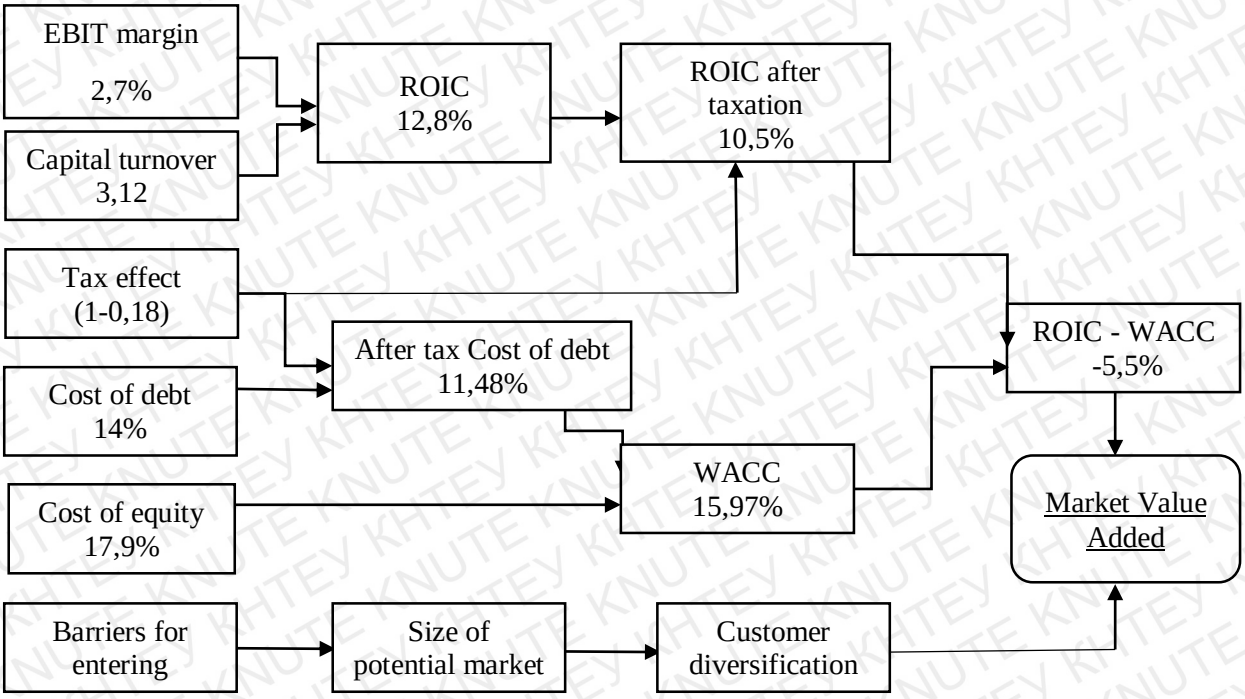

Figure K.3. Market value added (3rd method)

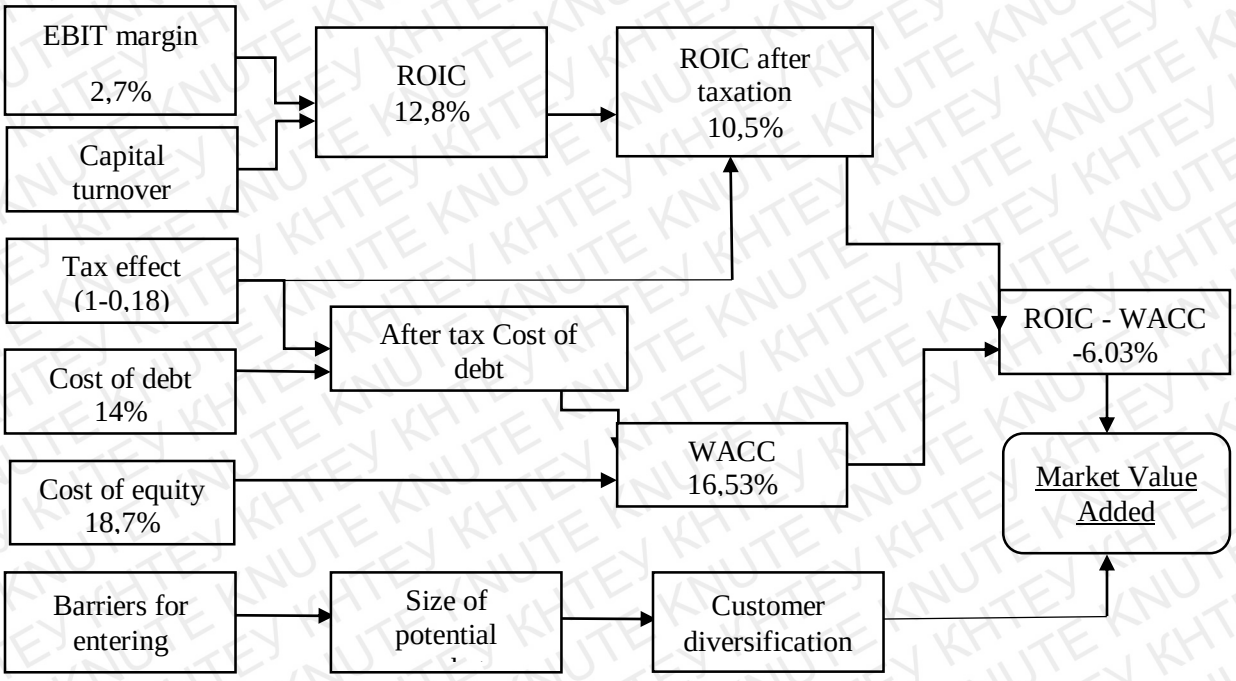

Figure K.4. Market value added (4th method)

Appendix L

Table L.1

Statement of financial position (asset part)

Items	31.12.14	31.12.15	31.12.16	31.12.17	31.12.18	31.12.19	31.12.20	31.12.21
	Analyzed period						Forecasted period	
Non-current assets	thousands	thousands	thousands	thousands	thousands	thousands	thousands	thousands
intangible assets	46	46	46	46	46	46	46	46
unfinished capital investment	1149							
fixed assets	1748	3270	5155	4884	5147	4164	5902	6930
initial value	5656	7656	10428	11127	12904	13567	19233	22580
depreciation	3908	4386	5273	6243	7757	9403	13330	15650
Total non-current assets	2943	3316	5201	4930	5193	4210	5948	6990
Current assets								
inventory	3606	3915	3998	5563	8435	11555	11824	13791
Accounts receivables								
for goods and services	446	392	117	29	29	29	29	29
for advances	x	0	4	54	78	0	0	0
for payments with budget	69	406	0	11	12	151	12	12
including from profit tax	x	393	0	0	0	40	0	0
other accounts receivables	131	242	329	569	643	1468	1361	1598
cash&equivalents	1906	7164	7775	7120	8080	3949	4014	4704
other current assets	137	145	41	91	95	94	94	94
Total current assets	6295	12264	12264	13437	17372	17245	17334	21846
Total assets	9238	15580	17465	18367	22565	21455	23282	27203

Appendix M

Table M.1

Statement of financial position (capital part)

Items	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018	31.12.2019	31.12.2020	31.12.2021
	Analyzed period						Forecasted period	
Equity	thousands	thousands	thousands	thousands	thousands	thousands	thousands	thousands
Additional capital	600	600	627	615	603	600	600	600
Retained earnings	1734	3361	11020	12051	13074	14112	15238	17921
Total equity	2334	3961	11647	12666	13677	14712	15838	18521
Non-current liabilities	0	0	0	0	0	0	0	0
Current liabilities								
Accounts payables for:								
goods and services	2011	3973	1637	2176	2254	554	611	713
payments with budget	1032	1789	1479	2440	2631	2979	3289	3836
including profit tax	369	0	0	233	0	0	0	0
payments for insurance	139	218	365	135	136	141	156	181
salary payments	326	438	1355	483	529	573	633	738
accounts payables for advances received	3366	5183	896	312	0	0	0	0
Other current liabilities	30	18	86	155	3338	2496	2756	3214
Total current liabilities	6904	11619	5818	5701	8888	6743	7444	8683
Total equity and liabilities	9238	15580	17465	18367	22565	21455	23282	27203

Appendix N

Table N.1

Income Statement

Items	2014	2015	2016	2017	2018	2019	2020	2021
	Analyzed period						Forecasted period	
Net sales revenue	29989	45944	70771	55127	79657	66893	73853	86706
Cost of goods sold	17840	25963	39649	36385	49399	45787	50550	58960
Gross profit	12146	19981	31122	18742	30258	21106	23302	27746
loss								
Other operating income	648	740	1050	536	343	339	339	339
Adminisrative expenses	1833	2871	4811	4295	5831	0	0	0
Selling expenses	7762	13573	17868	10425	16526	0	0	0
Other operating expenses	2446	1487	2190	2036	6462	19637	21680	23411
Operating profit	753	2790	7303	2522	1782	1809	1962	4674
loss								
Income tax	369	465	1315	454	321	326	353	841
Net profit	384	2325	5988	2068	1461	1483	1609	3833

Appendix O

Table O.1

Description of the Statement of Financial Position calculations

Item	Method of calculation
intangible assets	During analyzed period the amount was equal. So we used this amount for the forecast period
fixed assets	for calculation was used the next formulas: $$Fixed\ assets\ coverage\ ratio = \frac{Initial\ value\ of\ fixed\ assets 2019}{Net\ sales\ revenue 2019}$$ $$Fixed\ assets\ depreciation\ rate = \frac{Amortisation 2019}{Initial\ value\ of\ fixed\ assets 2019}$$ $$Initial\ value\ of fixed\ assets 2019 = Net\ sales\ revenue * (Fixed\ assets\ coverage\ ratio - Fixed\ assets\ coverage\ ratio * Fixed\ assets\ depreciation\ rate)$$
inventory	with the help of inventory turnover ratio for the last reported period
Accounts receivables	with the help of accounts receivables turnover ratio for the last reported period
cash&equivalents	with the help of the equation : Capital - Assets without cash
Total current assets	equal to the amount of the last reported period
Additional capital	is equal to the last reported period
Retained earnings	$$\text{retained earnings2019} = \text{retained earnings of the previous period} + \text{net profit} * \text{capitalization rate}$$ $$\text{capitalization rate2019} = (\text{retained earnings2019} - \text{retained earnings2018})/\text{net profit2019}$$
Accounts payables	with the help of accounts payables of the last reported period

Table O.2

Description of Income Statement calculations

Item	Method of calculation
Net sales revenue	$\sqrt[n-1]{\frac{Net\ sales\ revenue2019}{Net\ sales\ revenue2014}}$, n – analyzed period
COGS	Was taken as the level from the last reported period. COGS`s level is a relation between COGS and Net sales revenue
Other operating income	equal to the last reported period
Other operating expenses	Was taken as the level from the last reported period. The level is a relation between Other operating expenses and Net sales revenue

Appendix P

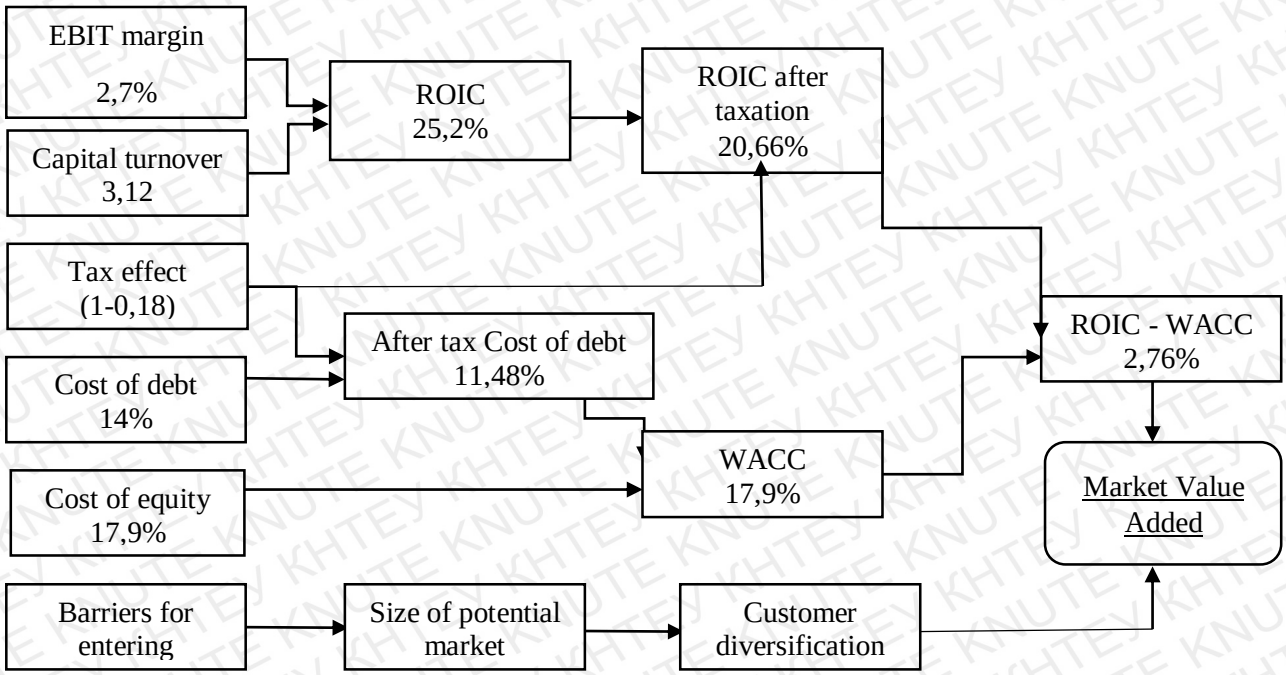

Figure P.1. Value driver`s tree (improved by 1st method)

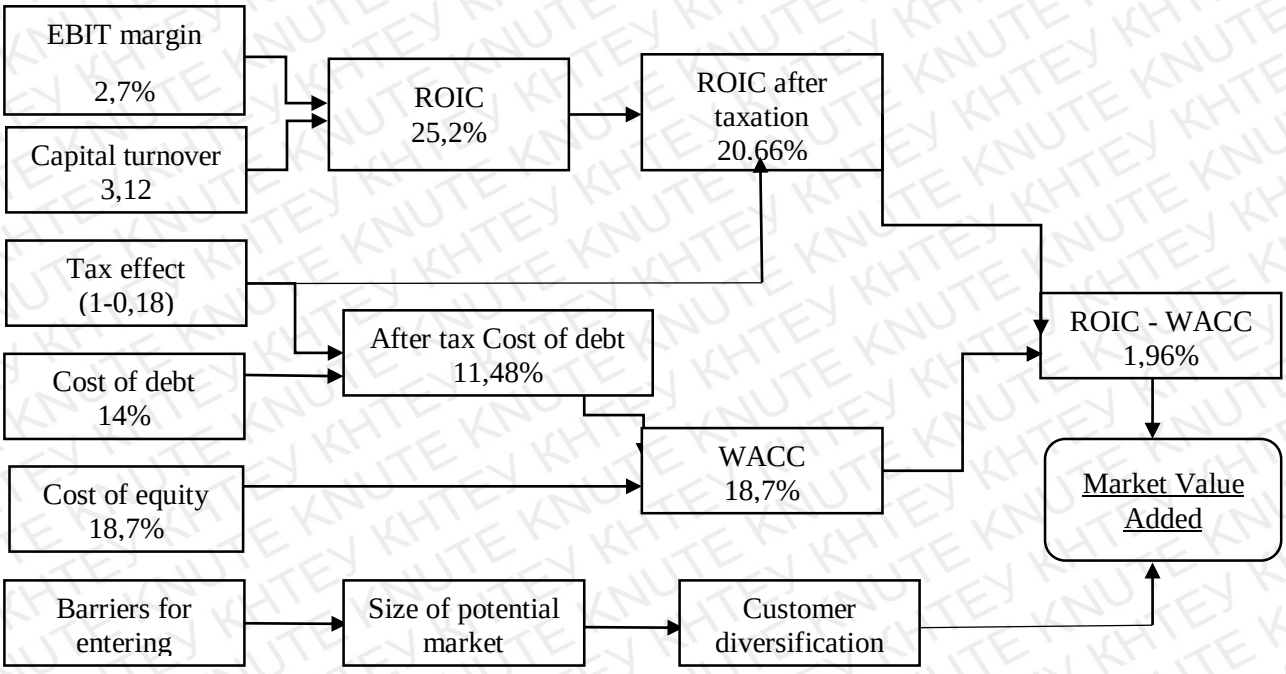

Figure P.2. Value driver`s tree (improved by 1st method)