Financial Appraisal of Wine Producing Private Firm Abkhazian Drinks and Co. in Abkhazia

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ABSTRACT

The Financial analysis is a process of evaluating projects, businesses, budgets etc. to determine their suitability for investment. Financial Analysis helps to determine whether the project is financially viable or sustainable.

There are several reasons to conduct financial analysis. One of the reasons chosen to conduct this research study is to evaluate the risk of an investment or determine if a firm has the ability to repay a loan, since when people and lending institutions are putting capital at risk they need to be able to determine the level of risk and probability of return of their actions. The study was also done in order to assess the viability of the project, with the help of analysis to figure out whether the project is the "good" project, identify whether investment in this project will make the equity holders better off, and increase their wealth. The aim of the company is to deliver the wines to the market, distribute the wines to the hotels, restaurants, bars and etc. The sales are done according to the contractual arrangements, offering the potential buyers discounts, assuring the stable demand and stable revenues. The two-way and one-way sensitivity analyses were conducted to identify the impact of the risky variables on the model's outcomes. The results obtained conclude that no matter how those variables vary during the experiment, the project's outcome seems to be not sensitive to risky parameters, due to the contracts arranged. The overall conclusion is that the model is viable and feasible, resulting in high NPV and high debt service ratios. From the both perspectives – the owner's and the overall investment perspective the project is bankable, feasible, and a perfect one, worth investing in.

ÖZ

Finansal analizi, projelerin, isletmelerin, bütcelerin vs degerlendirilmesi ve onlarin yatirima uygunlugunu belirlemek icin yapilan bir islemdir. Finansal analizi, projein finansal acidan uygulanabilir veya sürdürülebilir olup olmadigini belirlemekte yardimci olur.

Finansal analizinin yürütülmesi icin bir cok sebep var. Insanlar ve borc para veren kurumlar sermayelerini riske attiklari zaman, risk´in büyüklügünü ve geri adim atabilme olasiligini belirleyebilmeleri gerekir. Dolayisiyla bu arastirma calismasini yürütülmesi icin secilen nedenlerinden biri, yatirimin riskini degerlendirmek veya bir sirketin borcunu geri ödeyebilme gücüne sahip olup olmadigini belirlemekti. Ayrica bu calisma, proje´nin uygulanabilirligini degerlendirmek icin yapilmistir. Bunun icinse, proje´nin "iyi" proje olup olmadigini anlama, bu proje´ye yatirim sermaye sahiplerini daha zengin yapip yapmayacagini belirleme amaciyla yapilan analiz faydali olmustur. Sirket´in amaci saraplari piyasaya sürmek ve hotellere, restoranlara, barlara vs. dagitmaktir. Satislar, alicilara indirimler yaparak, sabit ragbeti ve sabit gelirleri temin ederek, sözlesmeye bagli düzenlemelere göre yapilir. Cift yönlü ve tek yönlü kararsizlik analizi, riskli degiskenlerin, modelin sonuclari üzerindeki ektisini belirlemek icin yapildi. Alinan sonuclara göre, deney sirasinda bu degiskenler nekadar farkli olursa olsun, düzenlenmis kontrattan dolayi proje´nin sonucu riskli parametrelere karsi hassas degil gibi görünmekte. Yüksek NBD ve yüksek borc oranlarindan cikan genel sonuc, modelin makul ve uygulanabilir oldugunu gösterir. Her iki bakis acisindan − mal sahibi´nin ve genel yatirim acisindan proje saglam, uygulanabilir ve yatirim icin mükemmel´dir.

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ADSCR	Annual Debt Service Coverage Ratio
LLCR	Loan Life Coverage Ratio
NPV	Net Present Value
IRR	Internal Rate of Return
VAT	Value Added Tax
RUB	Russian Ruble
EURO	European Currency
PV	Present Value

Chapter 1

INTRODUCTION

This section provides an explanation of the background of the company, along with describing the aim of the study, methodology chosen to conduct this research and the structure of this specific study.

1.1 Background

Abkhazia is a small country geographically located on the eastern cost of the Black Sea, sharing borders with Russia in the North Caucasus and Georgia in the East. Abkhazia is mostly rural and claims a variety of rich agricultural natural resources, primarily citrus fruit, tea, and tobacco. Abkhazian economy is heavily dependent on Russia, using the rubles as its currency, and mostly relying on Russia as export market, a trading partner and investor. In the first half of 2012, the main trading partners of Abkhazia were Russia (64%) and Turkey (18%).

In 1992-1993 Abkhazia had a severe war with the Georgians. In 1996 the economic sanctions were imposed on Abkhazia by the CIS countries after its declaration of sovereignty and the elimination of Georgian troops from the country. No foreign direct investment was able to reach the blockades. After a full recognition of independence, the new horizons were opened for the country's economic growth. Abkhazia became a platform for all kind of investments. Recently, the government is working on the improvement of the banking sector with the purpose of attraction of foreign investors. And the actual progress was achieved. A country with rich

agricultural resources gained the enormous interest of the Turkish entrepreneurs along with ones from Russia and England.

In this thesis I will conduct the financial appraisal of the corporation "Abkhazian Drinks and CO". The company specializes in the manufacture and sale of both alcoholic and non-alcoholic beverages. In this thesis, I will evaluate the new branch of wine production. The idea of the project belongs to the Abkhaz businessman living in England, which he accomplishes with the help of the fellows from Moldova and Abkhazia. The project plans to start it's operations in 2016.

1.2 Aim of the Study

More specifically, this thesis will:

- Apprraise the current project using a classic financial integrated appraisal with the purpose of assessing the financial viability of the company of interest.

- Examine the attractiveness from the owner's own point of view, who's the sponsor of the project by the own funds, as well as the bankers', who act as the lenders of the project.

- Conduct the risk analysis using Sensitivity Analysis and

- Suggest course of actions to overcome the risks and give overall recommendations.

By the end of the study, those particular questions will be answered:

- If there is enough funds available to finance the projects. What are the nature of these funds?

- Whether the project is worth undertaking: Does it generate a positive NPV?

- What are the distribution impacts of the project?

- What are the possible risks that may arise, and what steps to take in order to illuminate the risks and assure the viability and sustainability of the company?

1.3 Methodology of the Study

The process of collecting data and the methods of research used to collect the data was not sophisticated. With the availability of the Internet in today's developed world, the need for travel was illuminated. Hence, the decision was made that all data would be collected electronically through the use of Internet. The collection of data starts with the help of the financial analysis of the future company, which provides with all necessary data, and the collection of the information on contractual agreements performed by the owners. Moreover, the additional relevant data was collected from different virtual libraries, e-books, articles, financial journals, and lecture notes of Queen's University written by Prof. Jenkins, and ultimately, from various online worldwide web sources.

This thesis will analyze the current company using the financial appraisal with all its features. Variety of important financial analysis will be computed. The company will be appraised following the key steps:

- Identify project benefits and costs.

- Calculate the net cash flows by comparing the cost with benefits during the life of the investment.

- Discount the net cash flows by expressing all future benefits and costs in PV.

- Sum the discounted net cash flows to calculate the NPV.

- Calculate the IRR, the discount rate at which the NPV equals zero (representing the maximum interest rate a project could pay).

- Conduct a sensitivity analysis to determine how sensitive the results are to changes in key variables.

1.4 Structure of the Study

Chapter 1 will briefly present the profile of the company and the methodology used to conduct the appraisal discussed, while Chapter 2 will discuss the financial and risk analysis implemented in this work.

Chapter 3 will focus on the project definition concepts and parameters.

Chapter 4 examines the results obtained from the financial analysis under the base case scenario.

Chapter 5 represents the results of the sensitivity analysis; identifying the risks and finding the ways of it's mitigation through contractual arrangements.

Lastly, chapter 6 gives the conclusion of the previous chapters and recommends on how to make the project more feasible and viable.

Chapter 2

FINANCIAL AND RISK ANALYSIS

In this section the main concepts of financial and risk analysis, or sensitivity analysis used in this study will be seen. Discussion will focus on the analysis that will be applied and described in the chapter four.

2.1 Objectives of Financial Analysis

The financial analysis of the project helps determine the financial viability and sustainability of the project. Financial appraisal of the project is a concern of a private investor who's willing to point out the resulting from the project financial gains or losses (Jenkins, 2012).

Financial analysis is a stage that is the main concern of any lender. The purpose of financial analysis is to launch the worthy project based on the committed resources and anticipated benefits. The financial analysis is not an easy process. It's complex and sophisticated in nature that requires the help of specialists in appraisal and appointed consultants.

Appraisal covers four most important phases of the project: technical, institutional, financial and economic.

In the heart of all investment appraisals is the evaluation of the worthiness of proposals that need financial resources, by considering their benefits and costs. For a

private firm, bad investment decisions can turn out to be very crucial and may result in poor financial performance, limited or no future growth, loss of chances for attracting new investors or the dissatisfaction of existing owners (shareholders).

Needless to state, that there are a lot of investment opportunities existing for firms and they vary considerably. It's worth to mention, that companies will never make their investment decisions only according to financial decision criteria, considering how the proposed investment would be the company's best. And here comes the financial appraisal of investment opportunities.

The process of appraisal is divided into stages: idea and definition, pre-feasibility, feasibility, detailed design, and project implementation. Apparently the most important stage of appraisal is feasibility, which evaluates the viability of a financial plan and should be followed with careful study of the components, which include alternatives, costs and benefits. That's the field where the senior or chief accountants take a lead. Nevertheless, accountants are responsible to Finance Directors, who supervises the whole financial management.

The financial analysis of the project "Abkhazian Drinks and Co." is evaluated from two perspectives: the total investment (banker's) point of view and equity (owner's) point of view.

Firstly, the project should be appraised from the total investment (banker's) point of view. It's important to assess the project from the banker's perspective because it helps the banker to identify whether the project has the potential to generate

necessary amount of cash from sales to repay the interest and the loan in full on time before making any loan disbursement to the project.

Loan Life Coverage Ratio (LLCR) and Annual Debt Service Coverage Ratio (ADSCR) are the criterion used to identify whether the project is able to generate the sufficient cash flows to serve it's debt obligations. It should be noted that ratios are calculated only and when the project starts its operations, since it's all about the operating cash flow and debt service requirements.

ADSCR shows if the company can service it's debt obligation based on its yearly cash flows. Obviously, the ADSCR ratio can only be calculated when the project already operated for one year, and the reason for that is that it may affect the dividend payments. ADSCR is calculated as net cash flow after tax divided by the interest and principal.

$$ADSCR_t = \frac{\text{Annual Net Cash Flow in Year t}}{\text{Annual Debt Repayment in Year t}}$$

(1)

A negative ADSCR ratio shows that the project's inflows are not sufficient to cover expenses up. If ADSCR ratio is positive, it means that the project is able to cover it's outflows, however, there is no adequate cash to pay in full the bank's debt off. If the ADSCR ratio is equal to one that implies that the project is at the break even point, and the cash flows are enough to cover the operating costs and serve it's debt commitments, however, there won't be any cash left to pay dividends. Lastly, a ratio above one compensates all the oversights mentioned above.

Loan Life Coverage Ratio (LLCR) measures the original evaluation of a project's ability to serve it's debt as a whole and to continue monitor it over it's remaining years. But it's not useful if there have been important fluctuations in cash flows. It's measured as the present value (PV) of cash flows after tax has been paid, in the period of loan repayments over the present value (PV) of interests and principal payments at loan repayment period.

$$LLCR_{YearT} = \frac{Present\ Value\ of\ Annual\ Net\ Cash\ Flows^{Real}_{YearT}}{Present\ Value\ of\ Annual\ Debt\ Repayment^{Real}_{YearT}}$$

(2)

ADSCR is a function of a year-to-year base, while LLCR is more profound: it analyzes the project's capacity to pay back the debt more broadly and takes into consideration the residual cash flows and debt repayment for years.

LLCR ratio of 1.5-2.0 means that it's in the project's capacity to carry the debt obligations. LLCR ratio less than that means, that project is being financed badly. However, those ratios can't be standardized. The ratios will vary depending on the business standards and the risks.

The evaluation of the project from the bank's perspective is followed by the equity (owner's) perception and assessment of the project. Two approaches obviously differ in their nature a lot. The main difference in the two approaches is that banks focus on the net cash flow as the main mean of loan repayment, while the owners focus on the net cash flow from investment to be relatively higher than the ones could be obtained in the absence of the project.

There are different criteria in appraisal to evaluate the financial viability of the project. However, the Net Present Value (NPV) is the most used one. NPV measures the change in capital generated by the project and is a sum of present values of the cash flows over the life of the project (Jenkins 2004). Some state that NPV is the best evaluating alternative criteria whether the investment is financially significant or not. Harrison, Cooper and Chaperman (1998) during the appraisal of a hydropower plant in England used the NPV to study the financial viability and economic attractiveness of the hydropower. The argue was that "The method was chosen since it facilitates the sensitivity analysis and in that: This method was chosen because it facilitates sensitivity analysis and clarifies the effects of uncertainties in the limited cost data available at the feasibility stage of a project's life. Such projects, with long time-horizons and important sources of uncertainty, are particularly in need of systematic and consistent examination of sensitivity to parameter values" (Harrison, Cooper, Chaperman 1998). Many studies calculate NPV and use this figure to decide whether the project to accept the project or not. NPV criterion is used by many projects and is the most popular one.

$$NPV_{Year0} = \sum_{t=0}^{n} \frac{\text{Net Cash Flow}}{(1+r)^t}$$

(3)

Where the discount rate (rate of return) is the rate the project's owners agree to accept to invest their money in this specific project and is expressed as "r".

Here are some decision criteria about the project:

If the project's calculated NPV equals to 0, investors recover their initial investment and in addition earn the rate of return they would earn elsewhere. At this point the

project is not adding no loss no wealth. If a project's NPV is positive, then the investors not only recover their capital investment, but also expect to receive a return higher than the discount rate. However, if a project's NPV is negative, in this case the investors can neither be expecting to earn the return equal to the discount rate, nor can recover their capital investment, Hence the net worth of the investors is expected to decrease.

Basically IRR is the discount rate that is calculated using the equation below (see equation 4) and another criterion used for evaluation of the project along with NPV. The IRR is the discount rate that equals NPV to 0 (NPV=0) (Jenkins 2004).

$$\sum_{t=0}^{n} \frac{\text{Net Cash Flow}}{(1+k)t} = 0$$

(4)

In this equation the unknown is k=IRR. The decision rule is to accept the project if k>r, and reject the project if k<r. R is stand for the discount rate of return.

Financial Analysis will be conducted throughout the Excel Software. All the necessary data obtained regarding financial stuff, technical and economic data will be inserted into the table of parameters in Excel spreadsheet. Excel's table of parameters will contain all the necessary numbers needed for conducting the financial analysis, starting from the project time parameters and ending with inflation and exchange rate parameters. Table of parameters meant to be well designed, since all the calculations of parameters will be linked to the values of the variables in the table of parameter. The analysis starts with the calculation of investment costs, operating expenses, working capital, tax depreciation and residual values. Then the analysis is followed by an assessment of the operating and maintenance expenses.

All the results of the calculations will be applied while calculating the profit or loss from the operations. Then it's followed by constructing the loan schedule, which summarizes the outstanding debt at the end of each year along with the loan repayment. All these calculations are done in order to estimate the project's revenues and expenditures over the life of the project. However, the changes in relative prices and inflation must be taken into consideration during the assessment. For that reason, the calculations are done in nominal and real prices. Lately, the final step is the calculation of NPV and IRR of the project.

2.2 Analyzing Project's Risks

As the Wine Company is a big project, it requires the big financing in this respect. The big financings are always accompanied with the big risks. The purpose of the Risk Analysis is to identify those risks and try to find possible ways to mitigate them as a final step. Risk Analysis is in the heart of the project finance (Yescombe 2002).

Risk analysis involves the clarification of risk variables of the project and the kind of uncertainty they carry, the identification of the consequences of these risky variables on the project, and the explanation of the results. What is risky variable? It's a variable that is uncertain in the sense that it's hard to forecast it's future, but is can make an important difference to the project's outcomes (Savvides 1994).

Practically, risk analysis is important due to a couple of reasons: it helps to identify the "bad" projects (the projects with negative NPV) and avoid their acceptance, while not to lose the chance of accepting the "good" projects (the projects with positive NPV); once the risks are understood, the project enters into contractual arrangement stage for reducing the likelihood of risks; and finally in order to reduce uncertainty and to identify more accurately the probability distribution of the input it's needed to collect sufficiently enough data and more information.

The reason why the project finance was chosen in the course of this work is mainly for it's ability to bypass some risks on the other parties in the project, for example financiers, even though this has it's own cost as risk premium and in most cases makes the negotiating process longer.

The essence of any project funding is to identify all of the key risks associated with the project and the distribution of these risks between parties involved in the project. This is usually done through the contracts. Contracts are the tools in the process of redistribution of risks among the participants. Without a thorough analysis of these risks at the beginning the parties would not have a clear understanding of what commitments they can take over and, accordingly, they will not be able to quickly undertake appropriate measures to mitigate the risk in the exact right time. If problems arise in the course of the project, it could lead to serious delays, costs and major disputes over the distribution of responsibility. In general, as a rule, the specific risks should take on the side that is most able to manage and control it. Because of its complexity, every project has it's own risk characteristics.

This specific company may encounter the following risks:

a. The risk of a lack of demand or risks associated with the sale of products of the project.

The risk of demand for the sale of products of the project is apparently the fundamental risk that arises first. Before starting its operations the market analysis has to be done in advance, to detect whether there is the demand in the market for the specific product the company is planning to produce. That's the risk that the revenues generated by the project are less than expected, for example due to overly optimistic forecasts of sales of products and / or the selling price or the actions of competitors, especially in the case product vicariously. The long-term agreements on sale of products significantly reduce the volatility or uncertainty related to sales, and allows banks to treat them as a positive factor. In this regard, banks may require the project sponsor to ensure the presence of an agreement on the sale of products.

b. The risk of resources supply.

The risk of raw material or the risk of resources supply occurs when there is uncertainty in the supply of raw materials or when the project company is not getting the necessary materials for production operations and the resources available at a higher price than had been planned or lower quality than necessary for the efficient use of production capacity. That can be a reason to suspend the project's output. For instance, the late supply of wine materials may significantly increase the influence on production, price and result in losses. As a result, the object is functioning below full capacity, reduced marginal reserves and there are additional costs due to the need of additional sources of resources. Couple of contracts must be arrange, to avoid the risk of raw material in advance.

c. Market risk (Sometimes called the Price or Sales risk).

Market Risk takes place when the market prices fall, the share of the market drops, the demand for a project decreases, sales are absent due to failing quality of the project's facilities, as a consequence the project is unable to gain enough cash to service its debt. Probably the best strategy for Market Risk is in extending the long-term contracts further than the end of the loan life and the permanent improvement of the quality of products. Lender will be looking for the contracts like "take and pay", under which the project's output buyer ensures to buy an agreed amount of the product whether it's available. Take or pay contract as an option as well. Under this contract, the project's output buyer is going to pay for fixed amount of the goods whether available or not.

d. Foreign exchange risk.

Apart from the currency inconvertibility which is alone is a political risk, foreign exchange risk occurs when revenues generated by the projects vary from the project's loan currency. This is a typical situation for this project, since we've got loan of different than revenue currency. However, the outputs of the project are sold in the domestic currency. Adverse unprotected movement of foreign currency can dramatically affect the financial state of the firm resulting in financial losses. Here the useful tool is the currency swaps.

e. Operating risk (or the risk of default) or Technological risk.

It is the adoption of technology on the basis of innovative technologies in actual use demonstrating a lack of effectiveness. Occurs when the technical functioning of the object is below the minimal level of performance (e.g., deterioration of power efficiency, emission standards, or excessive consumption of raw materials), resulting

in the low efficiency of the planned financing and cost overruns. The negative potential of technological risk requires the company to initiate a project financing based on the tried and tested reliable technology. If technology used in a new project is an untried technology, the majority of financiers may want a technology warranty. In the case of operating risk the lender will require technology performance guarantees, if technology is unproven the lender may ask completion and operating guarantees from technology supplier.

f. Inflation risk.

Inflation Risk arises when the dynamics of the level of costs incurring laws of growth is not accompanied by a consequent increase in revenues. In these cases, the project sponsor must be able to pass price increases on the consumer. Inflation risk is also evident in the fact that most of the contracts between the Project Company and commercial contracting arrangements include the improvement of key necessities (interest rates, prices, fees, and so on).

The risk analysis will be conducted on the basis of sensitivity analysis, which is discussed in details in the following section. There is no need in this specific study to use the Monte Carlo risk analysis, because the sensitivity analysis does all necessary work needed for this specific study. And as the mean of risk mitigation gives the room for contractual arrangements.

2.3 Objectives of Sensitivity Analysis

Proceeding the financial analysis of the project, running the risk analysis of any project comes on the first place to find out which variables are risky. Here comes the sensitivity analysis, which mostly is used for the purpose of identification of risk

variables. Basically, this analysis testes how sensitive are the project's outcomes, like NPV,ADSCR, LLCR to changes in the value of any parameter. It's also so called "what if" analysis since it lets analysts to reply the question like «What may happen to NPV if variable x would change by a specific amount or percentage?» (Jenkins, 2012).

The idea behind sensitivity analysis is in choosing a particular parameter and then making a test with this variable over the series of possible values of the parameter, so that the model will run the test with each of this value of the parameter. Some of the project's inputs may vary high in the values however those changes may not significantly affect the major outcome of the project. On the other hand, there might be some kind of low variation variables but which can bring significant changes to the project's final outcome. Therefore, those low variation variables and their effect on the project must be considered as a major task. The parameter is assumed to be the risky one if it has significant impact on the project's outcome. For the sensitivity analysis made in this project, NPV from the owner's perspective, ADSCR and LLCR ratios for the first two years beginning of the repayment of loan (2021,2022) are considered. The variables in the parameters that will be tested for the reason of conducting the sensitivity analysis are:

Changes in sales prices according to contract; accounts receivable as % of gross sales; investment cost overruns; discount rate; loan proportion; wine production cost overrun factor; domestic inflation rate; exchange rate rub/euro and change in output demand and sales. During the analysis, the one way and two-way sensitivity analysis were implemented. One-way sensitivity analysis is a tool for observing what impact does one risky variable has on the model. Two-way sensitivity analysis demonstrates the impact of two risky parameters varying simultaneously.

Chapter 3

PROJECT DEFINITION AND PARAMETERS

This section is the detailed discussion of project background and it's parameters.

3.1 Project Background and Description

Abkhazia is located on the north - eastern coast of the Caucasus. It stretches along the Black Sea coast for 240 km. Total area - 8,6 thousand sq. km. The average length of the territory from west to east is 160 km and from south to north (-54) km. The coastline lengthens for 210km. There are lot of sunny days in Abkhazia. Out of 365 days a year for 300 of them sun shines brightly. Mountains occupy 64% of the territory. Nature of Abkhazia is very diverse. Very little snow falls on the coastal strip of the country, and there are years when it does not. Winters begin only at the end of December, and the spring starts by January and in early March. During the winters the temperature drops below zero but it rarely snows. The favourable geographic location and climate of Abkhazia make it favorable for any kind of agriculture. Thanks to this, Abkhazia is abundant with a huge amount of fruit, citrus, grapes, vegetables, which makes investors to consider this industry for their investments. In recent years, thanks to moderate economic growth, more and more investments have been done in this area.

Initially, the main factory of the company was built in 2010 and was focused on production of lemonades, still and sparkling water, chaha (high volume spirit), in addition to alcohol, the beer production line was also put into existence. After a

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couple of years of operations and sales of the products, the company gained success in the domestic market, becoming more and more competitive due to it's approved quality and marketing. In year 2015 it was planned to enhance the factory through building the line of wine production. In accordance with the plan the company will produce different types of still white and red wines, for instance semi-sweet white wine, white dry wine, red dry wine and semi-sweet red wine.

In the same year the company makes 70% of borrowings to cover the investment costs in the Bank of Cyprus. The remaining 30% of the investment costs is covered by the equity of shareholders. Firstly, the investment was made in the equipment, machineries necessary for the production, and the secondly – into the construction of buildings. The company invests in the newest equipment in accordance with the latest technology of the wine production. The equipment are as follows:

High-pressure compressor - energy machine or device for increasing the pressure (compression) and transfer gases.

CO2 production line – equipment for the production of carbon dioxide.

Washing Machine – machine for washing the bottles.

Support equipment – equipment for front and back labeling.

Equipment for Winery.

Equipment for bottling of still wines.

Construction is scheduled for the year 2016, and will last 1 year. The company is planned to start it's first ever production of wine in the second year, which is 2017.

The company decide not to grow the grapes, because the grapes ripening is a long process, which can take up to 4 years, and buy already ready wine materials from Moldova. Wine materials are alcohol-containing food products, which are used as a

raw material for the production of wine. Wine materials don't contain aromatic and flavoring additives. It's obtained by alcoholic fermentation of grapes, grape must or fruit, or berry juice without addition or with addition of: ethyl alcohol, produced from food raw material; and/or distillate containing ethyl alcohol of not more than 22.5% of the finished product. The still wine alcohols are made on the basis of those already developed wine materials. Then, we get another product like chacha by steaming the alcohol out of these wine materials; the other part of these alcohols is laid on the shutter speed so they will be used for the production of brandy and cognac further.

The main factory includes the production of 3 types of program: alcoholic products, low-alcoholic products, like beer, and non-alcoholic products, like soft drinks, which are produced only with the use of natural aromatizes and dyes, and mineral water.

3.2 Parameters and Assumptions

3.2.1 Project Costs (Investment Costs)

Investment cost and its components presented by timing in Table 1.

Table 1: Investment Costs by Components, 2015 Prices

Components	Year 2015	
Land	1,950,000	RUB
High-pressure compressor	218,700	EURO
CO2 production line	898,000	EURO
Washing Machine	27,000	EURO
Support equipment	256,750	EURO
Equipment for Winery	7,268,520	EURO
Equipment for bottling of still wines	2,354,260	EURO
Building and Constructions	14,106,320	EURO

3.2.2 Project Financing

As the main mean of financing of the project shareholders equity were raised. Besides, the company arranged for the loans from foreign bank located in South Cyprus – The Bank of Cyprus. The loan is denominated in EURO currency. The amount borrowed is 20,777,222 EUROS. The disbursement period of the loan denominated in EURO currency will be disbursed in 12 successive periods. The Bank of Cyprus with the purpose of interest capitalization offered 3-years grace periods. The company plans to start the repayment of the principle in the year 4 (2020) with the accumulated interests loan planning to be repaid. Lastly, the debt will be completely repaid in year 13 (2028). Cyprus Bank charges an interest rate of 10,75% for the loan offered in EUROS.

Table 2: Project Financing (in Real Numbers)

LOAN		Year	
Loan Disbursement	20,777,222	2016	EURO
Interest Rate	10,75%	2016	
No. Of Installments	12		
Grace period (years)	3		
Repayment of Principle Starts in Year	4	2020	
Total Investment Cost	1,816,727,530	2016	RUB

3.2.3 Residual Values and Depreciation

The depreciation expenses are assessed annually on the basis of straight-line depreciation. The Depreciation of assets with its economic lives is represented in Table 3.

Table 3: Economic Years and Depreciation for the purpose of Tax Calculation

	Economic Years	Tax Years
Equipment	25	20
Buildings and Constractions	25	20

3.2.4 Operating Costs

3.2.4.1 Project Life

It's planned to start the construction of the project in 2016, and its operations in 2017 and operate for minimum 19 years long, 12 month and 247 working days. All the figures are stated in 2015 prices.

Table 4: Project Time Parameters

	Year
Construction Starting Date	2016 (Year 1)
Construction Duration	1
Operation Starting Date	2017 (Year 2)
Project Termination	2035 (Year 20)

3.2.4.2 Operating Expenditures

The operating expenditures are composed by labor cost, electricity cost, cleaning cost, the cost of producing semi-sweet white wine (0,75ltr); semi-sweet red wine (0,75ltr); white dry wine (0,75ltr); red dry wine (0,75ltr); semi-sweet white wine (2ltr); semi-sweet red wine (2ltr); and other costs. Capacity of the projected plant is 10,000,000 bottles of wine per year however the degree of utilization is expected to be 90%. Project is expected to produce annually, consuming in average 17,009 RUB of electricity. This number is assumed not to be changing during the life of the project. Other costs include the cost of freight, office expenses, advertising costs, petrol costs, workers traveling expenses, advisory service expenses, machinery

maintenance expenses, repair of technical equipment costs, custom duties, and laboratory examination expenses.

Table 5: Operating Costs (in 2015 prices, in RUB)

	COSTS	
Cleaning Cost (annually)	72,000	RUB
Labor Cost (monthly)		
Skilled Labor Cost	50,000	RUB
Semi Skilled Labor Cost	20,000	RUB
Electricity Cost (annually)	17,009	RUB
Other Costs	3%	
Wine Production Cost		
Semi-sweet white wine (0,75ltr)	28	RUB
Semi-sweet red wine (0,75ltr)	50	RUB
White dry wine (0,75ltr)	49	RUB
Red dry wine (0,75ltr)	48	RUB
Semi-sweet white wine (2ltr)	94	RUB
Semi-sweet red wine (2ltr)	100	RUB

3.2.4.3 Land

The land the factory will be built on and operate, was already bought by the owner of the project in 2015. It consists of 1,300 hectares with 1,500 RUB per hectare, making the total cost of 1950,000 Rubles.

3.2.4.4 Water Cost

Abkhazia is a country with one of the largest fresh water reserves. And therefore the water fees will not be charged.

3.3 Labor Cost

The company employees 37 skilled and 38 unskilled/semi-skilled workers. The real wage rate per skilled person is 50,000 RUB/month, and for the semi-skilled/unskilled labor is 20,000 RUB/month. The increase in real wages is expected to be 1%. The company employs the team of equipment installers and maintenance of 5 workers, winery workers (the ones working specifically close to the machines) of 5 workers, 5

workers operating in central laboratory, engineers of 4 workers, administrative workers of 12, department of accounting and finance of 6 workers, operating line production of 10 workers, the distillation shop workers of 4, unskilled workers performing secondary works of 14.

3.4 Working Capital

Accounts receivables are 60% of total gross sales while accounts payable are 30% of operating costs excluding the labor cost, leaving 10% as the cash balance to be hold. One reason for the high distribution of payments on accounts is that the Abkhazian economy is developing one, and when the purchases of a high volume are made, the preferable method of payment is on account.

Table 6: Working Capital

	Assumption of Total Working Capital
Accounts Receivable as % of Gross Sales	60%
Accounts Payable as % of Operating Costs excl. Labor	30%
Cash Balance as % of Operating Costs	10%
Total Working Capital	100%

3.5 Revenues

The revenues come from the sales of the wine production in the local markets. Under the contractual arrangements, the company will distribute its production as:

35% of the production will be sold to restaurants, 25% to hotels, 10% to bars, and 30% to the local market. The company agrees to sell the wine according to the agreement with the discount on all wines. This project is expecting to receive 60% of all revenues paid in credits, while leaving 40% to be received in cash.

3.6 Discount Rate, Inflation and Exchange Rate

The average domestic inflation rate is assumed to be equal to 16%, while foreign inflation rate is the average inflation rate in S. Cyprus equals to 2% by the year 0 (2015). The real exchange rate is 71 RUB /EURO. The opportunity cost of capital equals to 15%.

Table 7: Discount Rate, Inflation and Exchange Rate, year 2015

	Rate
Financial Discount Rate Real	15%
Domestic Inflation Rate Real	16%
Foreign Inflation Rate Real	2%
Exchange Rate Real	71 RUB/EURO

Chapter 4

RESULTS OF ANALYSIS OBTAINED UNDER THE BASE CASE SCENARIO

This chapter focuses on presenting the results attained after the implementation of financial analysis under the base case scenario.

4.1 Results of Financial Analysis

4.1.1 Total Investment (Banker's) Perspective

From the investment point of view, the nominal cash flow statement includes all the benefits created by the project that constitute the project's inflows and the expenses that comprise the outflows. The annual net cash flows before financing are computed by finding the changes between the project's inflows and outflows that are important for evaluating the ability of project's to serve its debt. The real cash flow statement from the banker's point of view is found by dividing the nominal cash flow statement by the inflation index.

"Abkhazian Wine Producing Company Drinks and Co". project's inflows consist of revenues from the sale of the bottles of different types of wine. The nominal and real cash flows statements from the banker's (total investment) perspective are represented in the Table 8 – Table 17.

While evaluating the cash flows from the total investment point of view, there is no need to concentrate on calculation of NPV and IRR, since the key idea behind the assessing the project from the point of view of banker's is behind the assessment of

the bankability of the project. The ADSCR and LLCR debt service ratios are the ones to suggest the final decision. They have been calculated and results are going to be presented in the Table 18 and Table 19.

Table 8: Nominal Project Financial Net Benefit Statement (Investment Point of View, in million RUBLES). - Part 1

	2015	2016	2017	2018	2019
	0	1	2	3	4
INFLOWS					
Receipts					
Gross Sales			3419169600	3966236736	4600834614	5336968152
Change in Accounts Receivable			(2051501760)	(328240282)	(380758727)	(441680123)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW			1367667840	3637996454	4220075887	4895288029
Expenditures					
Investment					
Land		2262000			
Equipment		935109419			
Establishment and Support Service		1170032515			
Operating Costs					
Wine Production Costs			744115420	863173887	1001281709
Cleaning Costs			96883	112385	130366
Skilled Labor Cost			30472754	35701878	41828320
Unskilled/Semi-skilled Labor Cost			12518537	14666718	17183526
Electricity Cost			17623	20443	23714
Other Costs			2207357	2586099	3029827
Change is Accounts Payable			(233073011)	(37405397)	(43409773)
Change in Cash Balance			81990133	13206196	15334250
TOTAL CASH OUTFLOW		2107403935	638345695	892062209	1035401939
NET CASH FLOW BEFORE TAXES		(2107403935)	729322145	2745934246	3184673948

VAT		310833600	360566976	41825769
INCOME TAX		609549206	713879458	835114054
NET CASH FLOW	(2107403935)	(191060661)	1671487812	193130220

Table 9: Nominal Project Financial Net Benefit Statement (Investment Point of View, in million RUBLES). - Part II

	2020	2021	2022	2023	2024
	5	6	7	8	9
INFLOWS					
Receipts					
Gross Sales	5336968152	6190883056	7181424345	8330452241	9663324599
Change in Accounts Receivable	(441680123)	(512348943)	(594324773)	(689416737)	(799723415)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	4895288029	5678534114	6587099572	7641035503	8863601184
Expenditures					
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	1161486782	1347324668	1562896614	1812960073	2103033684
Cleaning Costs	151225	175421	203488	236046	273813
Skilled Labor Cost	49006060	57415500	67268000	78811189	92335189
Unskilled/Semi-skilled Labor Cost	20132219	23586908	27634422	32376488	37932294
Electricity Cost	27508	31909	37015	42937	49807
Other Costs	3549692	4158757	4872328	5708335	6687789
Change is Accounts Payable	298067835	(2714131)	(3179773)	(3725303)	(4364427)
Change in Cash Balance	(98343302)	2091123	2449926	2870293	3362790
TOTAL CASH OUTFLOW	1434078020	1432070155	1662182019	1929280059	2239310938
NET CASH FLOW BEFORE TAXES	3461210009	4246463958	4924917553	5711755445	6624290245

VAT	485178923	562807551	652856759	757313840	878484054
INCOME TAX	975985761	1153920562	1362264222	1606102302	1891357895
NET CASH FLOW	2000045324	2529735845	2909796572	3348339303	3854448296

Table 10: Nominal Project Financial Net Benefit Statement (Investment Point of View, in million RUBLES). - Part III

	2025	2026	2027	2028	2029
	10	11	12	13	14
INFLOWS					
Receipts					
Gross Sales	11209456535	13002969580	15083444713	17496795867	20296283206
Change in Accounts Receivable	(927679162)	(1076107827)	(1248285080)	(1448010692)	(1679692403)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	10281777373	11926861753	13835159634	16048785175	18616590803
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	2439519074	2829842126	3282616866	3807835564	4417089255
Cleaning Costs	317623	368443	427394	495777	575101
Skilled Labor Cost	108179907	126743579	148492777	173974138	203828100
Unskilled/Semi-skilled Labor Cost	44441475	52067633	61002438	71470457	83734787
Electricity Cost	57776	67020	77744	90183	104612
Other Costs	7835301	9179708	10754794	12600141	14762121
Change is Accounts Payable	(5113203)	(5990443)	(7018188)	(8222259)	(9632909)
Change in Cash Balance	3939791	4615797	5407796	6335691	7422799
TOTAL CASH OUTFLOW	2599177745	3016893863	3501761622	4064579692	4717883866
NET CASH FLOW BEFORE TAXES	7682599629	8909967890	10333398012	11984205483	13898706937

VAT	1019041503	1182088144	1371222247	1590617806	1845116655
INCOME TAX	2224928025	2614842066	3070445731	3602614722	4224002798
NET CASH FLOW	4438630100	5113037680	5891730034	6790972955	7829587483

Table 11: Nominal Project Financial Net Benefit Statement (Investment Point of View, in million RUBLES). - Part IV

	2030	2031	2032	2033	2034
	15	16	17	18	19
INFLOWS					
Receipts					
Gross Sales	23543688519	27310678682	31680387271	36749249235	42629129112
Change in Accounts Receivable	(1948443188)	(2260194098)	(2621825153)	(3041317178)	(3527927927)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	21595245331	25050484584	29058562118	33707932057	39101201186
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	5123823535	5943635301	6894616949	799775566	9277396567
Cleaning Costs	667118	773856	897673	1041301	1207909
Skilled Labor Cost	238805002	279783941	327794865	384044464	449946493
Unskilled/Semi-skilled Labor Cost	98103677	114938267	134661674	157769617	184842884
Electricity Cost	121350	140766	163288	189415	219721
Other Costs	17295064	20262623	23739371	27812678	32584905
Change is Accounts Payable	(11285580)	(13221796)	(15490203)	(18147798)	(21261351)
Change in Cash Balance	8696439	10188618	11936834	11936834	13985020
TOTAL CASH OUTFLOW	5476226605	6356501577	7378320452	8564450358	9941321774
NET CASH FLOW BEFORE TAXES	16119018726	8693983008	21680241666	25143481699	29159879411

VAT	2140335320	2482788971	2880035206	3340840840	3875375374
INCOME TAX	4903976911	5692560337	6607098556	7667706831	8897712430
NET CASH FLOW	9074706496	10518633700	12193107904	14134934029	16386791607

Table 12: Nominal Project Financial Net Benefit Statement (Investment Point of View, in million RUBLES). - Part V

	2035	2035
	20	21
INFLOWS		
Receipts		
Gross Sales	49449789770	
Change in Accounts Receivable	(4092396395)	29669873862
Liquidation Values		
Land		44020238
Equipment		4367505474
Establishment and Support Service		5464733119
TOTAL CASH INFLOW	45357393376	39546132693
Investment		
Land		
Equipment		
Establishment and Support Service		
Operating Costs		
Wine Production Costs	10761780017	
Cleaning Costs	1401175	
Skilled Labor Cost	527157312	
Unskilled/Semi-skilled Labor Cost	216561923	
Electricity Cost	2548761	
Other Costs	38175978	
Change is Accounts Payable	(24909094)	170096802
Change in Cash Balance	19196017	(131070858)
TOTAL CASH OUTFLOW	11539618204	39025945
NET CASH FLOW BEFORE TAXES	33817775172	39507106749

VAT	4495435434	0
INCOME TAX	10324167447	0
NET CASH FLOW	18998172291	39507106749

Table 13: Real Projected Financial Net Benefit Statement (Investment Points of View, in million RUBLES.) - Part I

	2015	2016	2017	2018	2019
	0	**1**	**2**	**3**	**4**
INFLOWS					
Receipts					
Gross Sales		0	2541000000	2541000000	2541000000
Change in Accounts Receivable		0	(1524600000)	(210289655)	(210289655)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW		**0**	**1016400000**	**2330710345**	**2330710345**
Investment					
Land		1950000			
Equipment		806128810			
Establishment and Support Service		1008648720			
Operating Costs					
Wine Production Costs			552998974	552998974	552998974
Cleaning Costs			72000	72000	72000
Skilled Labor Cost			22646220	22872682	23101409
Unskilled/Semi-skilled Labor Cost			9303312	9396345	9490309
Electricity Cost			13097	13097	13097
Other Costs			1640425	1656804	1673347
Change is Accounts Payable			(173211215)	(23964054)	(23974831)
Change in Cash Balance			60932025	8460651	8468970
TOTAL CASH OUTFLOW		1816727530	474394839	571506499	571843274
NET CASH FLOW BEFORE TAXES		(1816727530)	542005161	1759203846	1758867071

VAT	0	231000000	231000000	231000000
INCOME TAX	0	452994356	457352352	461226058
NET CASH FLOW	(1816727530)	(141989195)	1070851493	1066641014

Table 14: Real Projected Financial Net Benefit Statement (Investment Points of View, in million RUBLES.) - Part II

	2020	2021	2022	2023	2024
	5	6	7	8	9
INFLOWS					
Receipts					
Gross Sales	2541000000	2541000000	2541000000	2541000000	2541000000
Change in Accounts Receivable	(210289655)	(210289655)	(210289655)	(210289655)	(210289655)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	**2330710345**	**2330710345**	**2330710345**	**2330710345**	**2330710345**
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	552998974	552998974	552998974	552998974	552998974
Cleaning Costs	72000	72000	72000	72000	72000
Skilled Labor Cost	23332423	23565747	23801405	24039419	24279813
Unskilled/Semi-skilled Labor Cost	9585212	9681064	9777874	9875653	9974410
Electricity Cost	13097	13097	13097	13097	13097
Other Costs	1690055	1706930	1723973	1741188	1758574
Change is Accounts Payable	141913976	(1113994)	(1125098)	(1136312)	(1147639)
Change in Cash Balance	(46822526)	858285	866856	875513	884256
TOTAL CASH OUTFLOW	682783211	587782103	588129082	588479531	588833484
NET CASH FLOW BEFORE TAXES	1647927134	1742928241	1742581262	1742230814	1741876860

VAT		0	231000000	231000000	231000000
INCOME TAX	464679524	473617757	482009309	489902088	497338195
NET CASH FLOW	952247610	1038310484	1029571953	1021328725	1013538666

Table 15: Real Projected Financial Net Benefit Statement (Investment Points of View, in million RUBLES.) - Part III

	2025	2026	2027	2028	2029
	10	11	12	13	14
INFLOWS					
Receipts					
Gross Sales	2541000000	2541000000	2541000000	2541000000	2541000000
Change in Accounts Receivable	(210289655)	(210289655)	(210289655)	(210289655)	(210289655)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	**2330710345**	**2330710345**	**2330710345**	**2330710345**	**2330710345**
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	552998974	552998974	552998974	552998974	552998974
Cleaning Costs	72000	72000	72000	72000	72000
Skilled Labor Cost	24522611	24767837	25015516	25265671	25518328
Unskilled/Semi-skilled Labor Cost	10074154	10174895	10276644	10379411	10483205
Electricity Cost	13097	13097	13097	13097	13097
Other Costs	1776134	1793870	1811783	1829875	1848149
Change is Accounts Payable	(1159079)	(1170634)	(1182304)	(1194091)	(1205995)
Change in Cash Balance	893086	902005	911013	920111	929300
TOTAL CASH OUTFLOW	589190977	589552045	589916723	590285048	590657057
NET CASH FLOW BEFORE TAXES	1741519368	1741158300	1740793622	1740425296	1740053288

VAT	231000000	231000000	231000000	231000000	231000000
INCOME TAX	504354702	510984329	517256022	523195451	528825451
NET CASH FLOW	1006164666	999173971	992537600	986229845	980227837

Table 16: Real Projected Financial Net Benefit Statement (Investment Points of View, in million RUBLES.) - Part IV

	2030	2031	2032	2033	2034
	15	16	17	18	19
INFLOWS					
Receipts					
Gross Sales	2541000000	2541000000	2541000000	2541000000	2541000000
Change in Accounts Receivable	(210289655)	(210289655)	(210289655)	(210289655)	(210289655)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	**2330710345**	**2330710345**	**2330710345**	**2330710345**	**2330710345**
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	552998974	552998974	552998974	552998974	552998974
Cleaning Costs	72000	72000	72000	72000	72000
Skilled Labor Cost	25773511	26031246	26291558	26554474	26820019
Unskilled/Semi-skilled Labor Cost	10588037	10693917	10800856	10908865	11017954
Electricity Cost	13097	13097	13097	13097	13097
Other Costs	1866605	1885245	1904072	1923087	1942293
Change is Accounts Payable	(1218019)	(1230163)	(1242428)	(1254816)	(1267328)
Change in Cash Balance	938581	947954	957422	966984	976642
TOTAL CASH OUTFLOW	591032785	591412271	591795552	592182665	592573650
NET CASH FLOW BEFORE TAXES	1739677559	1739298074	1738914793	1738527680	1738136695

VAT	231000000	231000000	231000000	231000000	231000000
INCOME TAX	529271585	529638827	529937885	530177989	530367093
NET CASH FLOW	979405975	978659247	977976908	977349691	976769602

Table 17: Real Projected Financial Net Benefit Statement (Investment Points of View, in million RUBLES.) - Part V

	2035	2036
	20	21
INFLOWS		
Receipts		
Gross Sales	2541000000	
Change in Accounts Receivable	(210289655)	1314310345
Liquidation Values		
Land		1950000
Equipment		193470914
Establishment and Support Service		242075693
TOTAL CASH INFLOW	**2330710345**	**1751806952**
Investment		
Land		
Equipment		
Establishment and Support Service		
Operating Costs		
Wine Production Costs	552998974	
Cleaning Costs	72000	
Skilled Labor Cost	27088219	
Unskilled/Semi-skilled Labor Cost	11128133	
Electricity Cost	13097	
Other Costs	1961690	
Change is Accounts Payable	(1279965)	7534915
Change in Cash Balance	986396	(5806152)
TOTAL CASH OUTFLOW	592968544	1728764
NET CASH FLOW BEFORE TAXES	1737741801	1750078188

VAT	231000000	0
INCOME TAX	504354702	0
NET CASH FLOW	976229748	1750078188

4.1.2 Debt Service Ratios

As it was explained before, under the assessment of the banker's point of view, the two main ratios ADSCR and LLCR are going to be calculated in order to figure out whether the project is capable of paying off its debt obligation. Usually the ratios are calculated using the financial statement from banker's view in real numbers. The outcomes of the financial analysis are stated below:

Table 18: ADSCR Results Obtained from Financial Analysis (in RUB)

Year	Net Cash Flow (Real)	Annual Debt Repayment (Real)	ADSCR
2021	1,038,310,484	296,507,685	4
2022	1,029,571,953	272,193,685	4
2023	1,021,328,725	248,719,178	4
2024	1,013,538,666	226,060,589	4
2025	1,006,164,666	204,194,949	5
2026	999,173,971	183,099,872	5
2027	992,537,600	16,275,354	6
2028	986,229,845	143,134,719	7

As it can already be seen from the table above, and keeping in mind the interpretation of ADSCR also put above, the project seems to be close to perfect. At the beginning of the debt repayment in 2021, the ADSCR ratio hit 4, which is still high. After the year 2015 the ratios of ADSCR positively increase from 4 in 2024 to 7 in 2028, when the last debt payment was made. This is basically means that the project is at full capacity of repaying its expenses and serving it's debt obligation on time, and more than leaves some surplus sources for the equity holders.

Moving forward, let's observe the results obtained from the second debt service ratio, LLCR. The results of the financial analysis are seen in the Table 19 below:

Table 19: LLCR Results Obtained from Financial Analysis (in RUB)

Year	PV of Net Cash Flows (Real)	PV of Annual Repayment (Real)	LLCR
2021	5,835,689,803	1,315,334,406	4
2022	5,313,097,596	1,128,350,593	5
2023	4,744,004,650	948,193,776	5
2024	4,122,863,586	774,668,117	5
2025	3,443,577,349	607,582,837	6
2026	2,699,434,547	446,752,086	6
2027	1,883,038,589	291,994,828	6
2028	986,229,845	143,134,719	7

As it again can be observed from the table, adding the knowledge about LLCR stated in the above chapter 2, the current project has a very high LLCR ratio. Starting from the year 2021, when the first debt repayment was made, the ratio hits 4, which is already very high, and later on positively increases till it reaches ratio of 7 in the last year of debt repayment, year 2028. Since the LLCR ratio is the indicator for the bank, whether to offer the project bridge financing, and should be no less than 1.5. All the LLCR starting from the 2021 to 2028 are high enough to let the bankers take the decision, that the project is capable of bridge financing.

To sum up, from the bankers point of view, taking into consideration high ratios of ADSCR and LLCR, the project looks perfectly bankable and attractive for the bankers, since the cash flows generated by the project are enough to repay it's debt. However, all the results obtained considering the perspective of the investment are according to the base case scenario. There is uncertainty whether the project will follow this path when put into operation. And that's the reason the sensitivity analysis will be conducted showing the risks and the ways of reducing those risks through contractual arrangements in chapter 5.

4.1.3 Total Owner's Perspective

As it was discussed above in the chapter 2, assessing the project from the perspective of the owner, we focus on the NPV and IRR indicators. Since they are the main concern indicators of the owners of the project. Table 24 represent the results obtained from the financial cash flow statement from the perspective of the owner and shows that the NPV at the real discount rate of 15% is a very high positive number of 3,546,075,479 Rubles. That simply indicates that the project covers its expenses and costs and the owner earns more that 15% return on the equity. The other indicator – IRR- shows 82% positive number, which makes the project appear to be a very profitable, viable and "good" project worth being undertaken from the owner's perspective.

Everything looks pretty perfect again, while analyzing the project from the owner's perspective. But it must be kept in mind that all the results obtained under the perspective of the owner are according to the base case scenario. There is no guarantee that the project follows this same path when it will be put into operation. And that's the reason the sensitivity analysis will be conducted showing the risks and the ways of reducing those risks through contractual arrangements in chapter 5.

Table 20: Real Projected Financial Net Benefit Statement (Equity Points of View, in million RUBLES.) - Part I

	2015	2016	2017	2018	2019
	0	**1**	**2**	**3**	**4**
INFLOWS					
Receipts					
Gross Sales			2541000000	2541000000	254100000
Change in Accounts Receivable		0	(1524600000)	(210289655)	(210289655)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW		**0**	**1016400000**	**2330710345**	**2330710345**
Investment					
Land		1950000			
Equipment		806128810			
Establishment and Support Service		1008648720			
Operating Costs					
Wine Production Costs			552998974	552998974	552998974
Cleaning Costs		0	72000	72000	72000
Skilled Labor Cost		0	22646220	26532311	31085256
Unskilled/Semi-skilled Labor Cost		0	9303312	9396345	9490309
Electricity Cost		0	13097	15192	17623
Other Costs		0	1640425	1656804	1673347
Change is Accounts Payable			(173211215)	(23964054)	(23974831)
Change in Cash Balance			60932025	8460651	8468970
TOTAL CASH OUTFLOW		1816727530	474394839	575168224	579831647
NET CASH FLOW BEFORE TAXES		(1816727530)	542005161	1755542121	1750878698

VAT	0	231000000	231000000	231000000
INCOME TAX	0	452994356	457352352	461226058
NET CASH FLOW	(1816727530)	(141989195)	1067189768	1058652640

Table 21: Real Projected Financial Net Benefit Statement (Equity Points of View, in million RUBLES.) - Part II

	2020	2021	2022	2023	2024
	5	6	7	8	9
INFLOWS					
Receipts					
Gross Sales	2541000000	2541000000	2541000000	2541000000	2541000000
Change in Accounts Receivable	-210289655	-210289655	-210289655	-210289655	-210289655
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	2330710345	2330710345	2330710345	2330710345	2330710345
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	552998974	552998974	552998974	552998974	552998974
Cleaning Costs	72000	72000	72000	72000	72000
Skilled Labor Cost	36419486	42669070	49991082	58569552	68620087
Unskilled/Semi-skilled Labor Cost	9585212	9681064	9777874	9875653	9974410
Electricity Cost	20443	23714	27508	31909	37015
Other Costs	1690055	1706930	1723973	1741188	1758574
Change is Accounts Payable	141913976	(1113994)	(1125098)	(1136312)	(1147639)
Change in Cash Balance	(46822526)	858285	866856	875513	884256
TOTAL CASH OUTFLOW	695877619	606896043	614333171	623028476	63319767
NET CASH FLOW BEFORE TAXES	1634832725	1723814302	1716377174	1707681868	1697512669

VAT	231000000	231000000	231000000	231000000	231000000
INCOME TAX	464679524	473617757	482009309	489902088	497338195
NET CASH FLOW	939153202	1019196545	1003367865	986779780	969174474

Table 22: Real Projected Financial Net Benefit Statement (Equity Points of View, in million RUBLES.) - Part III

	2025	2026	2027	2028	2029
	10	11	12	13	14
INFLOWS					
Receipts					
Gross Sales	2541000000	2541000000	2541000000	2541000000	2541000000
Change in Accounts Receivable	(210289655)	(210289655)	(210289655)	(210289655)	(210289655)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	2330710345	2330710345	2330710345	2330710345	2330710345
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	552998974	552998974	552998974	552998974	552998974
Cleaning Costs	72000	72000	72000	72000	72000
Skilled Labor Cost	80395294	94191126	110354323	129291125	151477482
Unskilled/Semi-skilled Labor Cost	10074154	10174895	10276644	10379411	10483205
Electricity Cost	42937	49807	57776	67020	77744
Other Costs	1776134	1793870	1811783	1829875	1848149
Change is Accounts Payable	(1159079)	(1170634)	(1182304)	(1194091)	(1205995)
Change in Cash Balance	893086	902005	911013	920111	929300
TOTAL CASH OUTFLOW	645093500	659012044	675300210	694364426	716680858
NET CASH FLOW BEFORE TAXES	1685616845	1671698301	1655410135	1636345918	1614029486

VAT	231000000	231000000	231000000	231000000	231000000
INCOME TAX	504354702	510984329	517256022	523195451	528825451
NET CASH FLOW	950262143	929713972	907154113	882150467	854204036

Table 23: Real Projected Financial Net Benefit Statement (Equity Points of View, in million RUBLES.) - Part IV

	2030	2031	2032	2033	2034
	15	**16**	**17**	**18**	**19**
INFLOWS					
Receipts					
Gross Sales	2541000000	2541000000	2541000000	2541000000	2541000000
Change in Accounts Receivable	(210289655)	(210289655)	(210289655)	(210289655)	(210289655)
Liquidation Values					
Land					
Equipment					
Establishment and Support Service					
TOTAL CASH INFLOW	2330710345	2330710345	2330710345	2330710345	2330710345
Investment					
Land					
Equipment					
Establishment and Support Service					
Operating Costs					
Wine Production Costs	552998974	552998974	552998974	552998974	552998974
Cleaning Costs	72000	72000	72000	72000	72000
Skilled Labor Cost	177471018	207925045	243604983	285407598	334383542
Unskilled/Semi-skilled Labor Cost	10588037	10693917	10800856	10908865	11017954
Electricity Cost	90183	104612	121350	140766	163288
Other Costs	1866605	1885245	1904072	1923087	1942293
Change is Accounts Payable	(1218019)	(1230163)	(1242428)	(1254816)	(1267328)
Change in Cash Balance	938581	947954	957422	966984	976642
TOTAL CASH OUTFLOW	742807379	773397585	809217229	851163458	900287364
NET CASH FLOW BEFORE TAXES	1587902966	1557312760	1521493116	1479546887	1430422981

VAT	231000000	231000000	231000000	231000000	231000000
INCOME TAX	529271585	529638827	529937885	530177989	530367093
NET CASH FLOW	827631382	796673933	760555231	718368898	669055888
NPV@ 15%	**3546075479**				
IRR	**82,25%**				

Table 24: Real Projected Financial Net Benefit Statement (Equity Points of View, in million RUBLES.) - Part V

	2035	2035
	20	**21**
INFLOWS		
<u>**Receipts**</u>		
Gross Sales	2541000000	
Change in Accounts Receivable	(210289655)	1314310345
Liquidation Values		
Land		1950000
Equipment		193470914
Establishment and Support Service		242075693
TOTAL CASH INFLOW	2330710345	1751806952
Investment		
Land		
Equipment		
Establishment and Support Service		
Operating Costs		
Wine Production Costs	552998974	
Cleaning Costs	72000	
Skilled Labor Cost	391763757	
Unskilled/Semi-skilled Labor Cost	11128133	
Electricity Cost	189415	
Other Costs	1961690	
Change is Accounts Payable	(1279965)	7534915
Change in Cash Balance	986396	(5806152)
TOTAL CASH OUTFLOW	957820400	1728764
NET CASH FLOW BEFORE TAXES	1372889945	1750078188

VAT	231000000	0
INCOME TAX	530512053	0
NET CASH FLOW	611377892	1750078188
NPV@ 15%	**3546075479**	
IRR	**82,25**	

Chapter 5

RISKS AND THE WAYS OF REDUCING THESE RISKS THROUGH CONTRACTUAL ARRANGEMENTS

In this part of the study, we will look at the results obtained from one and two-way sensitivity analysis to identify the risks, and create the contracts that can best mitigate those risks.

5.1 Results Obtained from Sensitivity Analysis

1. One-Way Sensitivity Analysis.

The risky variables chosen for one way sensitivity analysis are changes in sales prices according to contract, accounts receivable as % of gross sales, investment cost overrun, discount rate, loan proportion, wine production cost overrun factor, domestic inflation rate, exchange rate and change in output, demand and sales.

The tables below will follow the results of the sensitivity analysis with explanations:

a. Changes in Sales Prices According to Contract

Table 25: Sensitivity Test Results of Changes in Sales Prices According to Contract

Changes in Sales Price	Financial NPV	ADSCR		LLCR	
		6	7	6	7
	3546075479	4	4	4	5
0%	**3546075479**	**4**	**4**	**4**	**5**
-5%	3170407330	3	4	4	4
-10%	2794739182	3	3	4	4
-15%	2419071034	3	3	4	4
-20%	2043402885	3	3	3	3
-30%	1292066588	2	2	3	3

The first and most important variable chosen for conduction sensitivity analysis is Changes in Sales Price According to the Contract and is considered as a main variable, since the company distributes all it's production according to this contract. The base case is considered to be 0%, with 3,546,075,479 NPV. This means that prices are the same as the market prices, and the project owner didn't arrange any contract yet. Later, the prices were decided to decrease from 5% to 30% respectively, to figure out the changes happening to NPV. It can be noticed that with the decrease of the prices, the NPV of the project decreases, and the same trend is followed by the ADSCR and LLCR ratios. However, even with 30% decrease in selling price compared to market prices, the NPV is still the huge number, and the ratios are quite good, which shows that the project is still good one. So, offering the production under the 30% discount is still a good decision, since it guarantees the stability and high NPV.

b. Accounts Receivable as % of Gross Sales

Table 26: Sensitivity Test Results of Changing in Accounts Receivable as % of Gross Sales

Accounts Receivable	Financial NPV 3546075479	ADSCR		LLCR	
		6	7	6	7
		4	4	4	5
60%	3546075479	4	4	4	5
50%	3940408434	4	4	5	5
40%	4334741390	4	4	5	5
30%	4729074345	4	4	5	5
20%	5123407301	4	4	5	5
10%	5517740256	4	4	5	6

The second variable chosen for the experiment is Accounts Receivable as % of Gross Sales. The base case is at 60% of Accounts Receivable and NPV equals to

3,546,075,479. Following the experiment, the proportion of the accounts receivable decreases from the base case of 60% to 10%. As in can be noticed the amount of the NPV increases, however the change in the accounts receivable doesn't really affect the debt service ratios. Through all the experiment the debt ratios show the high results. Concluding, regarding the ratios of accounts receivable, the project still looks very bankable. Obviously, the project's NPV will look much better if the accounts receivable compose only 10%, however, with the same 60% the project still looks perfect.

c. Investment Cost Overruns

Table 27: Sensitivity Test Results of Changing in Investment Cost Overruns

Investment Cost Overruns	Financial	ADSCR		LLCR	
	NPV	6	7	6	7
	3546075479	4	4	4	5
0%	3546075479	4	4	4	5
10%	3424251493	3	3	4	4
20%	3302427507	3	3	4	4
30%	3180603521	3	3	3	4
40%	3058779536	3	3	3	3
50%	2936955550	2	3	3	3

The other next variable chosen for the sensitivity analysis is investment cost overrun. The base case assumes to be at 0% cost overrun and at NPV of 3,546,075,479. Later the percentage of cost overruns is increased from 0% to 50%, testing the changes in NPV and debt ratios. As it can be observed, the NPV reacts dramatically to the increase in the percentage of cost overrun, so do the debt ratios, slowly decreasing. Definitely the project's owner should try to keep the investment cost overrun at the lowest percentage, since when these are no cost overrun, the NPV is at highest. But even at 50% of cost overrun, the project is still making the equity holders better off,

turning to be very successful and bankable one, since the NPV is a big positive

number of 2,936,955,550. The conclusion is the project is not sensitive to percentage

change in cost overrun.

- Discount Rate

Table 28: Sensitivity Test Results of Changing in Discount Rate

Discount Rate	Financial NPV	ADSCR		LLCR	
		6	7	6	7
	3546075479	4	4	4	5
5%	8414572311	4	4	4	5
10%	5282410911	4	4	4	5
15%	**3546075479**	**4**	**4**	**4**	**5**
20%	2503922264	4	4	4	5
25%	1833995122	4	4	4	5

Change in the Discount Rate is experimented as a risky variable in the sensitivity

analysis. The base case is at 15% and 3,546,075,479 NPV. Here it's observed that

the best result of the NPV is achieved at the discount rate of 5%, that is where NPV

is at it's highest ever − 8,414,572,311. The lowest result of NPV is achieved at the

discount rate of 25%, where the NPV is as low as 1,833,995,122. This happens

because the lower the initial investment needs to be in order to achieve the target

yield. The discount rate has the big impact on the discounted cash flows and NPV

depends on the discount rate. Though, the debt ratios react reverse to the NPV. The

ADSCR is seemed to be stable over the whole experiment with the percentages.

However the LLCR showed the deference at the year 7, hitting the ratio of 5. As a

conclusion, it can be said that the discount rate has the significant impact on the

project's NPV. The lower the discount rate, the better off the project's NPV.

- Loan Proportion

Table 29: Sensitivity Test Results of Changing in Loan Proportion

Loan Proportion	Financial NPV	ADSCR		LLCR	
		6	7	6	7
	3546075479	**4**	**4**	**4**	**5**
80%	3615587185	3	3	4	4
70%	**3546075479**	**4**	**4**	**4**	**5**
60%	3476563772	4	4	5	5
50%	3407052066	5	5	6	7
40%	3337540359	6	7	8	8

Loan proportion is the other variable that can have an impact on the project. As the table above suggests, at the base case the company is financed by 70% of the debt and the rest 30% of finance comes from the equity. During the experiment, the debt proportion in the company was fluctuating from 80% to 40%. The financial NPV was at its best of 3,615,587,185 when the proportion of loan was at 80%. As the loan proportion was decreasing, the NPV was decreasing as well, reaching the 3,337,540,359 at 40% of loan proportion. There is no significant impact on the NPV observed, but the significant impact is on the debt ratios, which react very positively to the changes in the debt proportion, increasing the ADSCR from 4 in the base case to 7, in the year 7 at 40% of debt proportion; and LLCR from 5 in the base case year 7, to 8 at 40% of debt. These ratios show that the lower the loan proportion in the company, the more bankable the project becomes. Summing up, the project is not sensitive to the changes in the loan proportion.

- Wine Production Cost Overrun

Table 30: Sensitivity Test Results of Changing in Wine Production Overrun

Wine Cost Overrun	Financial NPV	ADSCR		LLCR	
		6	7	6	7
	3546075479	**4**	**4**	**4**	**5**
-10%	3776258377	4	4	5	5
0%	**3546075479**	**4**	**4**	**4**	**5**
10%	3315892581	3	4	4	5
20%	3085709682	3	4	4	4
30%	2855526784	3	3	4	4
40%	2625343885	3	3	4	4

The wine production cost overrun is the cost that can importantly affect the project's cash flows. Since the production costs are relatively high. The base case is assumed to be at 0% cost overrun, which yields 3,546,075,479 of NPV. The cost overrun was increased from (-10%) to 40%. Here are the changes observed: the financial NPV was at its best of 3,776,258,377 when the cost overrun was at (-10%). As the percentage of cost overrun was increasing, the NPV was dramatically decreasing, reaching the 2,625,343,885 at 40% of wine production cost overrun. Here is the reverse relationship between the wine cost overrun and NPV. The factors causing the wine production cost overrun may be poor engineering/planning, poor wealth, exchange rate fluctuation, inflation and etc. these all result in the additional costs. The ADSCR ratio was following the same as NPV trend, decreasing from the ratio 4 at the (-10%) of cost overrun, to ratio 3 at 40%. About the LLCR, it seems to be quite stable, and unaffected by the changes in cost overrun proportion. To sum up, the financial company's NPV is at it's best, when the cost overrun is as (-10%). The same trend is followed by the debt ratios. The project is affected by the wine cost overrun.

- Domestic Inflation Rate

Table 31: Sensitivity Test Results of Changing in Domestic Inflation Rate

Domestic Inflation Rate	Financial NPV	ADSCR		LLCR	
		6	7	6	7
	3546075479	4	4	4	5
12%	3909088983	4	4	5	5
16%	**3546075479**	**4**	**4**	**4**	**5**
20%	3142554230	3	4	4	4
30%	1694995909	3	4	3	4
40%	(1394807875)	2	2	3	3

Domestic inflation rate in the base case is 16%. However, it's well known that inflation has the trend to fluctuate over time, so it was decided to experiment how those fluctuation affect the project's outcome. The range of the inflation chosen was between 12% and 40%. At the base case of 16% the NPV of the project is 3,546,075,479. When the inflation increases, it can be observed from above, that the NPV starts to decrease. And finally, at 40% of Domestic Inflation, the financial NPV of the company is a negative number of (-1,394,807,875). This is happening because of the impact of inflation on accounts receivable. Since the accounts receivable compose 60%, it appears to be a huge number, as the products are sold this year, but the revenues are collected next year. The money loses value in real terms. However, before that, even if the inflation reaches 30% in the country, the project is still the good one, since it produces the positive NPV of 1,694,995,909. Looking at the debt ratios, the same trend is followed by ADSCR ratio, which decreases from 4 in the base case to 2 obviously, with 40% of inflation. LLCR is also decreasing from the ratio 5 in the base case, to 3 in relation with the inflation. But it's less affected by the change in the domestic inflation, because even at the 40% of domestic inflation the

LLCR ratio is 3. The final conclusion is that the project is sensitive to changes in the domestic inflation rate.

- Exchange Rate

Table 32: Sensitivity Test Results of Changing in Exchange Rate

Exchange Rate	Financial NPV	ADSCR		LLCR	
		6	7	6	7
	3546075479	4	4	4	5
71	**3546075479**	**4**	**4**	**4**	**5**
85	3305859169	3	3	4	4
100	3048484551	3	3	3	3
115	2791109933	2	2	3	3
130	2533735315	2	2	2	3

The exchange rate is another important variable that will affect the project whatever the changes happen, since the loan was borrowed in foreign currency. So the base case is assumed when the exchange rate is 71 RUB/EURO and the financial NPV is 3,546,075,479. However, due to some financial crisis, the exchange rate is expected to be increasing yearly, because of that, in the experiment the range was chose from 71 RUB/EURO to 130RRUB/EURO. There is noticeable decrease in the NPV from 3,546,075,479 in the base case at the exchange rate equals to 71, to 2,533,735,315 at the exchange rate of 130. The highest impact of these changes are noticed on the debt ratios, ADSCR and LLCR, which decrease from ratio 4 to 2, as promised. Meaning that at the exchange rate 130 RUB/EURO the company's project will face difficulties serving the debt, however the project is still considered to be a good one. The summing up conclusion is that the project is sensitive to the changes in the exchange rate.

- Change in Output, Demand and Sales

Table 33: Sensitivity Test Results of Change in Output, Demand and Sales

Change in output, demand and sales	Financial NPV 3546075479	ADSCR		LLCR	
		6	7	6	7
		4	4	4	5
0%	3546075479	4	4	4	5
15%	2764345381	3	3	4	4
30%	1982615283	2	3	3	3
45%	1200885186	2	2	2	3
60%	419155088	1	2	2	2

Here we try to figure out what happens if the production goes down. The base case is assumed to be at 0% utilization factor, meaning that company is producing at full capacity. This gives the NPV of 3,546,075,479. The range of the change in output chosen for the experiment is from 0% to 60%. The NPV is decreasing as the change in output increasing. If the company produces at utilization factor of 85% (15%) or even 55% (45%), the project still turns out to be the good project, resulting in the positive NPVs. If the company produces and sales at 60% less, the NPV will be as low as 419,155,088. This happens because the cost of fixed investment is taken into consideration. However the company is not able to produce at full capacity, maybe because there is no demand or there is production problem. The summing conclusion is that the project is sensitive to the changes in output, demand and sales.

2. Two-Way Sensitivity Analysis

For the two-way sensitivity analysis the risky variables to change simultaneously were chosen are domestic inflation and wine production cost overrun, domestic inflation and change in sales prices according to contract, domestic inflation and accounts receivable, wine production cost overrun factor and, change in output, demand and sales and change in sales prices according to contract.

The comments on results obtained can be followed below, Table 34-39:

From the Table 34, the first test was conducted using the two risky parameters Domestic Inflation and Wine Production Cost Overrun. The figures were changing simultaneously. Domestic Inflation Rate was tested using the ranges between 12% - 40%, while the wine production cost overrun was tested using the ranges between (-10%) to 40%. The base case is considered to be at 16% of Domestic Inflation and 0% of Wine Production Cost Overrun. The NPV at this point equals to 3,546,075,479. It's observed from the table that with the increase in inflation rate and the wine production cost overrun, the NPV is decreasing and the more the increase in those two parameters the lower is the NPV. It reaches it's critical point at the domestic inflation equals to 40% and between any range chosen for the wine production cost overrun. Therefore, NPV is at it's lowest point when domestic inflation and the wine production cost overrun both equal to 40%. The NPV at this point is as low as (-2,302,558,998). So it can be concluded that simultaneous increase in the domestic inflation rate and wine production cost overrun may have very dramatic impact on the project, ruining it completely. Since the inflation is the force that can't be controlled by the project's owner, and have the trend to increase over time, the project's owner should take care over the production cost overrun.

From the table 35, the next parameters chosen for two-way sensitivity analysis are again changes in domestic inflation rate and changes in sale prices according the contract. The case is assumed base when the inflation rate is at 16% and the change in the prices according to the contract is 0%. The NPV at this point is 3,546,075,479. The experiment was conducted increasing the domestic inflation rate same as in the first case, and decreasing the prices of product according to the contract from 0% to (-30%). The NPV is affected dramatically, decreasing in value with the increase in

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inflation rate. It reaches it's lowest point at the domestic inflation rate equals to 40% and decrease in prices by 30%. At this point the NPV is as low as (-3,284,505,737). As the conclusion, even at the inflation rate of 30% the sales prices according to the contract can be decreased up to 20%, and at 20% of inflation, the prices of the sales can be decreased up to 30%, and the project is still good one, resulting in positive NPV. However, if there is 40% inflation in the country, even at 0% change in sales prices the NPV of the company is affected negatively. Accounts receivable are 60% in the base case in the wine market, but the company is going to sell the products at a lower price by signing the contracts with the hotels, restaurants, and bars and local shops. Under this contract, the part of accounts receivable will be negotiated. The company may choose to offer the 30% discount in the sales price in return asking for the 30% proportion of accounts receivable and 70% proportion of cash, instead of previous 60%. In this case, even with 40% of inflation, the NPV is still positive.

From the table 36, the experiment was made to check the results of simultaneous changes in domestic inflation rate and accounts receivable. Since the domestic inflation is a risk factor, in the situation when the accounts receivable are high. Since the 60% of the sales revenues are receive in credit term the year after the purchase occurs, and as result of the high inflation impact in the country, the money loses its value. The base case is assumed to be at 16% of domestic inflation and 60% of accounts receivable. At this point NPV of the company equals to 3,546,075,479. At 40% of inflation the NPV is negative in both one way and two-way sensitivity analysis. It's negative because if the high accounts receivable. If accounts receivable are at 40% and the inflation is at the same point, the NPV is still negative number of (-201,351,932). However, everything becomes possible at 40% of domestic inflation and 30% of accounts receivable, since the NPV is a positive number of 395,376,039.

As the conclusion here, the company should arrange the couple of contracts to avoid the losses.

From the table 37, the experiment was run to test the effect of simultaneous change in wine production cost overrun factor and change in sales price according to contract. The base case here is considered to be at 0% wine production cost overrun and 0% changes in sales prices according to the contract. The NPV at the base case equals to 3,546,075,479. The picture here follows the same as below trend. Pointing out that with the increase of the wine production cost overrun and decrease in the sales prices according to the contract, the NPV falls down, with every increase in the wine cost overrun and decrease in the sales prices according to the contract. So it's highly not recommended for the company to expect the increase in the wine production cost overrun and at the same time decrease the prices of the product. Since it's of responsibility of the project's owner, it wouldn't be suggest for the owner to increase the wine production cost overrun by 40% and at the same time decrease the prices of the sale by 30%, because at this point the NPV will be as low as 371,334,995. However, even at this point, the project is still good one, and the investor is benefiting from it.

From the table 38, the two variables – change in output, demand and sales and change is sales price according to the contract were analyzed. The base case is assumed to be at 0% of change in sales price according to the contract and 0% in change in output, demand and sales, meaning that the sales price is the market price and we produce 9 million bottles per year. The NPV at this point is equal to 3,546,075,479. But if we decide to write the contract and make the price 15% less and if at the same time something happens to the company, and as a result the

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company is not able to produce at full capacity, the company is going to produce at 40% capacity (-60%), so the project becomes a bad project. The contract that can be signed with the input supplier, so the company will never go below some ranges, assuring that the inputs are provided. Then if the company goes below 30% of production of output, and if the (-30%) discount on prices was offered compared to market prices, the project is still better off. And even if the price offered is (-30%) of the market price, and the production is below 40%, the project is still a good one. So here the decision will be to sign the contract that will guarantee the sales and positive NPV.

Table 39 represents break even points, the points at which the NPV will equals 0, and the project will turn to be not worthy for the investment. The NPV will equal 0: If the sales prices according to the contracts are going to fall by 47%, if accounts receivable will compose 150% of gross sales, if there is be 291% in investment cost overrun, if discount rate is going to be 82%, if there is 154% cost overrun in wine production, if domestic inflation rate is 36%, if exchange rate is going to be 277RUB/EURO and if the utilization factor is 32% (-68%).

WINE PRODUCTION COST OVER-RUN FACTOR

3 546 075 479	-10%	0%	10%	20%	30%	40%
12%	4 139 947 947	3 909 088 983	3 678 230 018	3 447 371 054	3 216 512 089	2 985 653 124
16%	3 776 258 377	**3 546 075 479**	3 315 892 581	3 085 709 682	2 855 526 784	2 625 343 885
DOMESTIC INFLATION 20%	3 372 106 134	3 142 554 230	2 913 002 327	2 683 450 424	2 453 898 520	2 224 346 617
30%	1 923 140 208	1 694 995 909	1 466 851 610	1 238 707 311	1 010 563 013	782 418 714
40%	(1 167 870 094)	(1 394 807 875)	(1 621 745 655)	(1 848 683 436)	(2 075 621 217)	(2 302 558 998)

Table 34: Two-way sensitivity analysis in Changing Domestic Inflation Rate and Wine Production Cost Overrun

Table 35: Two-way sensitivity analysis in Changing Domestic Inflation Rate and Change in Sales Price According to Contract

CHANGE IN SALES PRICE ACCORDING TO CONTRACT

3 546 075 479	0%	-5%	-10%	-15%	-20%	-30%
12%	3 909 088 983	3 520 771 146	3 132 453 309	2 744 135 472	2 355 817 635	1 579 181 961
16%	**3 546 075 479**	3 170 407 330	2 794 739 182	2 419 071 034	2 043 402 885	1 292 066 588
DOMESTIC INFLATION 20%	3 142 554 230	2 778 692 458	2 414 830 685	2 050 968 913	1 687 107 140	959 383 595
30%	1 694 995 909	1 357 471 437	1 019 946 964	682 422 492	344 898 020	(330 150 925)
40%	(1 394 807 875)	(1 709 757 518)	(2 024 707 162)	(2 339 656 806)	(2 654 606 450)	(3 284 505 737)

Table 36: Two-way sensitivity analysis in Changing Domestic Inflation Rate and Change in Accounts Receivable

		ACCOUNTS RECEIVABLE					
3 546 075 479		**60%**	**50%**	**40%**	**30%**	**20%**	**10%**
	12%	3 909 088 983	4 261 256 310	4 613 423 637	4 965 590 964	5 317 758 291	5 669 925 619
	16%	3 546 075 479	3 940 408 434	4 334 741 390	4 729 074 345	5 123 407 301	5 517 740 256
DOMESTIC INFLATION	20%	3 142 554 230	3 576 241 772	4 009 929 314	4 443 616 856	4 877 304 398	5 310 991 939
	30%	1 694 995 909	2 216 474 451	2 737 952 994	3 259 431 536	3 780 910 078	4 302 388 620
	40%	(1 394 807 875)	(798 079 903)	(201 351 932)	395 376 039	992 104 010	1 588 831 981

Table 37: Two-way sensitivity analysis in Changing Wine Production Cost Overrun and Change in Sales Prices According to the Contract

		WINE PRODUCTION COST OVER-RUN FACTOR					
3 546 075 479		**0%**	**-5%**	**-10%**	**-15%**	**-20%**	**-30%**
	-10%	3 776 258 377	3 400 590 229	3 024 922 080	2 649 253 932	2 273 585 784	1 522 249 487
	0%	**3 546 075 479**	3 170 407 330	2 794 739 182	2 419 071 034	2 043 402 885	1 292 066 588
CHANGE IN SALES PRICE ACCORDING TO CONTRACT	10%	3 315 892 581	2 940 224 432	2 564 556 284	2 188 888 135	1 813 219 987	1 061 883 690
	20%	3 085 709 682	2 710 041 534	2 334 373 385	1 958 705 237	1 583 037 088	831 700 792
	30%	2 855 526 784	2 479 858 635	2 104 190 487	1 728 522 338	1 352 854 190	601 517 893
	40%	2 625 343 885	2 249 675 737	1 874 007 589	1 498 339 440	1 122 671 292	371 334 995

Table 38: Two-way sensitivity analysis in Changing in Output, Demand and Sales and Change in Sales Price According to Contract

		CHANGE IN SALES PRICE ACCORDING TO CONTRACT					
	3 546 075 479	**0%**	**-5%**	**-10%**	**-15%**	**-20%**	**-30%**
	0%	**3 546 075 479**	3 170 407 330	2 794 739 182	2 419 071 034	2 043 402 885	1 292 066 588
	-15%	2 764 345 381	2 445 027 455	2 125 709 529	1 806 391 603	1 487 073 677	848 437 824
CHANGE IN OUTPUT, DEMAND AND SALES	**-30%**	1 982 615 283	1 719 647 580	1 456 679 876	1 193 712 172	930 744 468	404 809 060
	-45%	1 200 885 186	994 267 704	787 650 222	581 032 741	374 415 259	(38 819 704)
	-60%	419 155 088	268 887 829	118 620 569	(31 646 690)	(181 913 950)	(482 448 468)

Table 39: Break Even Points

BREAK EVEN POINTS

CHANGES IN SALES PRICES ACCORDING TO THE CONTRACT

                                                                    -47%

ACCOUNTS RECEIVABLE AS % CHANGE IN GROSS SALES

                                                                    150%

INVESTMENT COST OVERRUN

                                                                    291%

DISCOUNT RATE

                                                                    82%

WINE PRODUCTION COST OVERRUN FACTOR

                                                                    154

DOMESTIC INFLATION RATE

                                                                    36%

EXCHANGE RATE (RUB/EURO)

                                                        277 RUB/UERO

CHANGE IN OUTPUT, DEMAND AND SALES   **-68%**

5.2 Contractual Arrangements

In general, the project is the perfect one, however after the one-way and two-way sensitivity analysis were put in place, some risks appeared that could influence the project's output. In order to mitigate those risks, the contractual arrangements are used as main useful tool.

Here are three main contracts that will be arranged by this specific company to solve the risks and generate positive NPVs, dominate the market and make the project not risky at all:

    a. Offtake Contract

    b. Input Supply Contract or Raw Material Supply Contract

    c. Construction Contract or EPC contract

a. Offtake contract is the common contract for the projects that sell products. This type of the contract fits the requirement of this entire project, since the project if going to produce and sell the product which is wine. Under this agreement, two parties are considered to be involved. First party is the Project Company (the seller of the wine) itself, and the second party is the Offtaker (the purchaser of the wine). The offtake contract provides the Offtaker (purchaser) with the protected supply of the required product (wine) and the Project Company with the assurance that the product (wine) is going to be sold on preagreed fashion. Offtake contract is used by the Project Company as the easiest way to reduce the risks.

However, the offtake contract can be represented in different type of forms. There are two most useful forms for this specific company that reduce demand and market risk on price for this project: take or pay contract and long-term sales contract.

Take or pay contract is the one form. And this is the type of contract where the purchaser of the product (offtaker) must purchase the product or make a payment to the Project Company instead of purchase. The prices of the product are already agreed beforehand. Under this contract the offtaker's responsibility is to make the payment for the product no matter what happens to the Project Company. Take or pay contract is the great contract to reduce the risks of the Project Company, since it gets paid whether the project's product is acquired by the offtaker or not.

The other Project Company beneficiary type of Offtake contract is long term sales contract. In this case the offtaker agrees to buy the agreed upon amount of the product of the project on the market based prices at the time when the purchase occurs. Here, the Project Company is not involved into the demand risk, however it may face the market risk on price. But the purchaser also wouldn't be willing to take the market risk on price. Hence, this type of the contract can be modified to satisfy both the Offtaker and the Project Company. It can be modified in the way that the Project Company offers the Offtaker the product (wine) not agreed upon the market price, but with the special discounts. Looking at the table 25, the result of the sensitivity analysis indicates that the project may decrease the price of the wine against the market price by 5%, 20% or even 30%, and still generate high positive NPV. Due to the modification made in the contract, both sides seem to be benefiting, as Project Company is eliminating the risk related to the demand, since throughout the offered discounts it assures that the quantity of the bottles are going to be sold completely, plus it manages to reduce the market risk on the price. And the offtaker seems to be happy too, because it won't face the market risk, since it's not going to directly depend on the market price of the wine, but receives the wine with the special discount and secure it's supply of the wine. So here comes the question of

what should be discount the Project Company can offer to the Offtaker so the both sides are benefiting. Referring to the table 35, the results of the two-way sensitivity analysis in changing domestic inflation rate and changes in sales price according to contract state that at the current inflation rate of 16%, the company may offer up to 30% discount in the wine, making the positive 1,292,066,588 NPV. However, the inflation has the trend to increase in this country, so with the simultaneous increase in inflation and the discounts in the wine prices, the NPV of the company decreases. The 30% of discount on the wine can be offered only at the 20% inflation rate, which produces the NPV of 959,383,595. And in the upcoming years, if the inflation rate is as high as 40%, even if the wine would be offered at the market price with no discount, the NPV is going to be negative number (1,394,807,875). The main reason behind this is the Accounts Receivable, which compromise 60% at the base case, and are general for this country. The Inflation has the direct impact on the Accounts Receivable, since the 60% of the revenues are going to be received next year, and due to the inflation money losses value. Here comes the part that can be negotiated with the Offtaker. The table 36 shows the result of the two-way sensitivity analysis of the relation between Domestic Inflation Rate and the Accounts Receivable. From the table, as the proportion of the Accounts Receivable decrease with increase in Domestic Inflation Rate simultaneously, as it was predicted before, the NPV has the trend to increase. If the proportion of the Accounts Receivable is 30%, so even at the Inflation Rate of 40% the NPV is a positive number of 395,376,039. Here the owner of the project may choose to negotiate this part with the potential buyers, who in this case are hotels, bars, restaurants and local markets. The Project Company can offer the Offtaker the agreement, under which the Offtaker must agree to pay 30% on credits against previous 60%, while paying 70% in cash against previous 40%, and

the Project Company is going to offer the Offtaker 30% discount on the wine prices against the market prices (from the table 25,35,36). Shortly, the Project Company arranges the long terms offtake contract with the bars, hotels, restaurants and markets, who are the buyers of the product which in this case is wine, and the Project Company agrees to offer 30% discount in the prices of the wine against the market prices, only if the Offtaker is going to pay 70% of it's all purchases in cash, and leaving 30% on credits. This contract looks very preferable, since it reduced all the risks with the demand and price of the company, making the project perfect one and leaving the room to dominate the wine market by decreasing the prices.

b. For the project selling an output product raw materials are most likely to be the main operating costs. It's important building block for this type of the project finance to secure the input supplies on the appropriate pricing basis. For this company the raw material is the wine material, which is used to make the wine. Here the long term Input Supply Contract is required. An Input Supply Contract provides the Project Company with defined amount of the raw materials, in this case it's wine materials, on an agreed beforehand cost. The contract therefore should eliminate supply or price risks for the Project Company, but there are some risk issues remained. If the Input Supplier fails to supply the raw material, the Project Company losses the revenues, incurs extra costs by securing suppliers from different sources, or incurs penalties from the Offtaker. The Input Supplier must compensate for any delays and extra costs incurred by the Project Company. In this case the Project Company arranges the Contract with the Input Supplier offering the higher than the market price on the raw wine material for assuring the constant supply and elimination of the risks stated above. Referring to the table 37, the results of two-way sensitivity analysis shows that the Project Company may pay to the Input Supplier 10%, 20%,

or even 30% extra cost on the input supplied if the Input Supplier assures that there would be o% wine production cost overrun. However, according to the table, even if the wine production cost overrun is high at (-30%), the project's NPV is still high number, but that's supposedly not going to work in the real life case, since with every cost overrun comes another costs and risks the Project Company should cover.

So for this case, the Project Company agrees to pay the Input Supplier up to 30% extra cost on the wine materials, if the Input Supplier assures that the wine cost overrun is at 0%, in other words if the Input Supplier agrees to provide a fixed quantity of supplies to the Project Company on agreed schedule with no timing delays. And at this point, the NPV of the project is going to be a relatively high positive number of 1,242,066,588 (see the table 37). The Input Supplier is responsible for assuring it has enough supplies, and if the Supplier fails to performer it's part of obligations, the Supplier is going to cover the losses incurred by Project Company. Through the arrangement of the Input Supply Contract the Project Company eliminates the raw material supply risk and other risks that could arise in the case of the raw material supply risk.

c. The Construction Contract in project finance is usually in the form of a contract to design and engineer the project, deliver or manufacture any plant or equipment required, and construct and build the project. In this project, there is no investment cost overrun identified, but the project may face timing overrun, meaning that if the specialists can't build the facilities in time, the project is losing the expected profit. According to the plan stated, the building and construction of the plant must be completed in one year time. The example is «turn-key» contract, where the responsibility is to deliver a complete project fully equipped and ready for operation

in time. This is known as engineering, procurement, and construction contract (EPC). The EPC Contract therefore provides for the work to be done by the EPC Contractor at a fixed price and to be completed at a fixed date. Such a fixed-price, date-certain, turnkey EPC Contract transfers a significant amount of responsibility and risks to the EPC Contractor. This is the contract through which the Project Company is going to make sure that there is no timing overrun and the facility is going to be ready for operations in 1 year.

Chapter 6

CONCLUSION AND RECOMMENDATIONS

This study concluded an integrated financial and sensitivity analysis of the company of interest – Abkhazian Wine Producing Company "Abkhazian Drinks and Co." in Abkhazia. The study was done in order to assess the viability of the project, with the help of analysis to figure out whether the project is the "good" project, identify whether investment in this project will make the equity holders better off, and increase their wealth. The aim of the company is to deliver the wines to the market, distribute the wines to the hotels, restaurants, bars and etc. The sales are done according to the contractual arrangements, offering the potential buyers discounts, assuring the stable demand and stable revenues. The following sections will bring the summary of the conducted analysis.

From the point of view of bankers, the wine project looks very attractive and could be easily accepted financing using available financial sources. This happens mostly because of the complete trend, where ADSCR ratios are very high, and specify the availability of enough of cash sources generated by the project to cover both expenses of the project and serve it's debt obligations plus leaving some significant part from the profit to be distributed between the equity holders. Taking into consideration all the results of analysis conducted above, the project looks perfect, complete and quiet satisfactory for the bankers, for as long as it can service it's debt. Regarding the LLCR ratios, they show a high outcome as well, no matter the

experiments undertaken. This can only mean that the project has enough sufficient cash flow to afford the bridge financing as well. That can motivate the banker's to offer the bridge financing as well all the way throughout those years.

From the point of view of owner, the NPV of the Abkhazian Drinks and Co. Company is 3,546,075,479 Rubles, which obviously indicates that the company is at its best to cover its costs and additions, and the owner has gained more than 15% real return on the equity. In addition, IRR is 82,25%. Consequently these both ratios point out that the project is financially feasible and viable, and is worthy to be invested in from the owner's perspective. From the both perspectives – the owner's and the overall investment perspective the project is bankable, feasible, and a perfect one, worth investing in.

The model is seem to be sensitive to the following parameters: changes in sales prices according to contract, accounts receivable as % of gross sales, investment cost overruns, discount rate, loan proportion, wine production cost overrun factor, domestic inflation rate, exchange rate rub/euro. The two-way sensitivity analysis was conducted with domestic inflation and wine production cost overrun, domestic inflation and changes in sales prices according to the contracts, domestic inflation and accounts receivable, wine production cost overrun and change in sales prices according to the contract and change in output, demand and sales.

The overall conclusion based on the results obtained from the sensitivity analysis is that because of the contractual arrangements performed in the project, no matter how those risky variables vary during the experiment, the model still looks viable and feasible, resulting in high NPV and high debt ratios. Those contracts are long-term

sale offtake contract, input supply contract or raw material supply contract, and construction contract or EPC contract. Those entire contracts make the project a perfect one, guaranteeing the demand, sales, supply of the wine materials and investment items, at the same time eliminating all the potential risks.

Regarding this study, starting from the base case the project looks complete and perfect from the owner's as well as total investment (banker's) points of view. After realizing the risks and arranging the contracts, the project became stable for the risks that are specific for that field. The recommendation will be to follow the plan, and the project will bring enormous profits.

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