Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economic Theories

Diploma Thesis

Market valuation of transport enterprises in sea deliveries (Case study of Novorossiysk Sea Commercial Port)

Mikhail Krivko

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

Mikhail Krivko

Economics and Management

Thesis title

Market Valuation of Transport Enterprises in Sea Deliveries (Case study of Novorossiysk Sea Commercial Port)

Objectives of thesis

Aims of the Diploma Thesis are to construct mathematical model of quantitative factors influencing market value of NCSP, and to determine the feasible applications of it.

Methodology

Research questions:

1. What are the quantitative factors of NCSP market capitalization with level of impact more than 0,6?

2. Why some factors of NCSP market capitalization is more significant than others?

3. How financial condition of NCSP influences market capitalization?

4. What is the level and direction of impact of increasing or decreasing revenue on NCSP market capitalization?

5. What is the level and direction of impact of increasing or decreasing net profit on NCSP market capitalization?

6. What is the level and direction of impact of increasing or decreasing equity on NCSP market capitalization?

7. What is the level and direction of impact of increasing or decreasing currency rate on NCSP market capitalization?

Stages of research:

- gathering the data from NCSP quarterly financial reports for the years 2011-2016;

- preparing gathered data to match the requirements of non-linear regression analysis;

- calculating dynamics of each indicator instead of absolute numbers;

- using software for statistical calculations and estimating regression model;

- economic analysis of the data.

Methods of the Diploma Thesis include:

- observation;
- economic and financial analysis;
- horizontal analysis of financial reports;
- vertical analysis of financial reports;
- regression analysis.

The proposed extent of the thesis

70 pages

Keywords

financial markets, market valuation, regression analysis, mathematical modelling, transport enterprises, seaports, Russian Federation, Novorossiysk Commercial Sea Port.

Recommended information sources

Abramov A.E. Market Capitalization – definition, indicators and its application, Aktsionernoye Obschestvo, 2003, №3(4) May, ISSN 1726-9059, pp. 51-55.

Fernandez, P. (2001), "EVA, Economic profit and Cash value added do NOT measure shareholder value creation", (June 5, 2001) SSRN working paper n. 270799, date of access 12.09.2016.

Ohlson, James A. and Johannesson, Erik (2015), Equity Value as a Function of (Eps1, Eps2, Dps1, Bvps, Beta): Concepts and Realities (June 14, 2015). Web: http://ssrn.com/abstract=2590487, date of access 12.09.2016.

Expected date of thesis defence

2016/17 SS – FEM

The Diploma Thesis Supervisor

Oldřich Ludwig Dittrich, MPH, Ph.D.

Supervising department

Department of Economic Theories

Electronic approval: 29. 3. 2017

doc. PhDr. Ing. Lucie Severová, Ph.D.

Head of department

Electronic approval: 29. 3. 2017

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 29. 03. 2017

Declaration

I declare that I have worked on my diploma thesis titled "Market valuation of transport enterprises in sea deliveries (Case study of Novorossiysk Sea Commercial Port)" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 31.03.2017 _____

Acknowledgement

I would like to thank my supervisor, PhDr. Oldřich Ludwig Dittrich, MPH, Ph.D. for valuable pieces of advice and support during my work on the thesis.

Furthermore, I would like to thank my family for their support throughout my study.

Market valuation of transport enterprises in sea deliveries (Case study of Novorossiysk Sea Commercial Port)

Abstract

This research examined factors which influenced market value of the transport enterprise, Novorossiysk Sea Commercial Port. The objective of the research is to identify the historical performance of the company and compare the level of impact of individual internal and external factors on the market value of the company for the period of 1.01.2010-30.09.2016. Financial analysis and regression analysis are used for the purposes of current research. The data for the research is taken from financial reports of the company, Moscow exchange and reports of Russian financial regulators. The analysis of the gathered data shows, that during specified period of time market value of the company was under significant influence of market risk and foreign exchange rate. The series of consecutive negative events resulted in remarkable changes in market value. The study gives recommendations on the lowering of probability of these risks and on the changes in investment policy and foreign exchange risk management.

Keywords: Financial market, market value, market capitalization, transport enterprise, financial analysis, Russia, seaport.

Tržní ocenění dopravních podniků v oblasti námořní přepravy (Případová studie Novorossijskeho námořního obchodního přístavu)

Abstrakt

Tento výzkum zkoumal faktory, které ovlivnily tržní hodnotu dopravního podniku, Novorossijskeho námořního obchodního přístavu. Cílem výzkumu je zjistit historickou výkonnost společnosti a porovnávat míru vlivu jednotlivých vnitřních a vnějších faktorů na tržní hodnotu společnosti pro období 1.01.2010-30.09.2016. Finanční analýza a regresní analýzy jsou používány pro účely současného výzkumu. Data pro výzkum jsou převzaty z finančních zpráv společnosti, Moskevskou burzy a zpráv ruských finančních regulátorů. Analýza získaných dat patrné, že během stanovené období tržní hodnoty časového společnosti bylo pod podstatným vlivem tržního rizika a devizového kurzu. Řada po sobě jdoucích negativních událostí vedl k mimořádným změnám v tržní hodnotě. Studie uvádí doporučení na snížení pravděpodobnosti těchto rizik a na základě změn v investiční politice a řízení rizik devizového.

Klíčová slova: Finanční trh, tržní hodnota, tržní kapitalizace, dopravní podnik, finanční analýza, rusko, námořní přístav.

Table of content

1 Introduction

The world becomes global. Tendencies of integration, economic cooperation and specialization are evident across regions, continents and nations. Export and import between different countries has never been higher then today. Most of developed countries enjoy benefits of economic cooperation and specialization, which is backed by WTO development. The overview of economic cooperation today would not be complete without international trade. International trade had been a foundation of economic wellbeing for centuries, and its dominating role remains the same today.

The leading role of transport industry is showed by growing part of services in global GDP formation. More than 68% of global GDP comes from services according to World Bank for January, 1st, 2016.

A transport industry in contemporary world grows for decades. Research done by World Bank shows that world container port traffic tripled from 225 mln TEU (twenty-foot equivalent units) in 2000 to up to 679 mln TEU in 2014, forming a steady trend for the years coming.

The actuality of the current work is proved by the fact, that capitalization of transport sector directly influences growth of transportation, and therefore the world economic growth.

Researches on this topic have been conducted by J. A. Ohlson and E. Johannesson in 2015, P. Fernandez in 2001 and 2015, V. Yu. Demidenko and T. I. Nalivaysky in 2010, O.N. Baburina in 2013, V.A. Scherbakov and N.A. Scherbakova in 2006, J. Bender, R. Briand, D. Melas and R. A. Subramanian in 2013, D.A. Alekseev in 2011. They studied topics related to capitalization of enterprises, factors of capitalization, mathematical models of company's value, value creation for stakeholders, financial state, and prospects of leading transport enterprises of Russia, portfolio management, and factor investing. The most studied are the topics of portfolio management theory, value creation for stake holders, strategic prospects of the transports enterprises in Russia.

Nevertheless a lot of effort put in previous research, this field of study still has some problems that should be solved. Topics of capitalization and equity factors for public transport enterprises are still not studied properly. In this case we can apply systematization, mathematical

research and additional study of factors influencing capitalization of public transport enterprises in order to provide deep theoretical research of economy equity problems.

At the same time transport industries become more and more interesting for investments, both private and government. For the group of upper middle income countries (which includes Russian Federation as well) investments in transport with private participation rose by 208% from $ 16,897 billion up to $ 51,984 (in current US dollars) for the period of 2011-2014.

Financial markets play a huge role in modern economy. Total value of traded stocks as a percent of GDP is at the historic maximum of 170% for 2015, according to the World Bank data. This value is even more than 163% at 2008, before global financial crisis. At the same time, market capitalization of listed domestic companies as a percent of GDP is very volatile during last decade. Its values ranges from 53,9% in 1992 to 120% in 1999. Financial sector of the economy still remains one of the most influencing on economy growth and development. It is very important to understand which factors influences financial sector and capitalization as well in order to able to understand what can be done to achieve sustainable economic growth and national wellbeing.

The research aims to combine the operational performance of the particular transport enterprise and performance of financial markets in order to identify the reasons and factors of growing or declining market value of the company, and to formulate possible recommendations on market value growth through discovering these interdependences.

2 Objectives and Methodology

2.1 Objectives

The object of study is investments in transport industry, especially investments in seaport enterprises, which shares are publicly traded on stock exchange. Novorossiysk Commercial Sea Port has been taken as an example of seaport and transport enterprises.

The goal of the current work is to offer deep study of capitalization growth factors for public transport enterprises especially for NCSP as well as capitalization and equity influence on financial state of the company, to construct mathematical model of quantitative factors influencing market value of NCSP, and to determine recommendations.

Research questions:

1. What are the quantitative factors of NCSP market capitalization with level of impact more than 0,6?
2. Why some factors of NCSP market capitalization are more significant than others?
3. How financial condition of NCSP influences market capitalization?
4. What is the level and direction of impact of increasing or decreasing revenue on NCSP market capitalization?
5. What is the level and direction of impact of increasing or decreasing net profit on NCSP market capitalization?
6. What is the level and direction of impact of increasing or decreasing equity on NCSP market capitalization?
7. What is the level and direction of impact of increasing or decreasing currency rate on NCSP market capitalization?

2.2 Methodology

Methods used in current research include mathematical modeling, statistical analysis, statistical comparison, and financial analysis. Methodology of current work is based on economic analysis, financial analysis and regression analysis.

From the methodological point of view sea transport enterprises capitalization and equity research is very similar to other economic categories. Contemporary science offers different tools to study economic entities including equity and capitalization. Among others, we must highlight mathematical modeling and regression analysis, statistical comparison and financial analysis.

It is plausible to say that a mathematical model is an abstract model which uses mathematical approach to describe an object, process or a system. Mathematical models are used especially in the natural sciences and engineering disciplines (such as physics, biology, and electrical engineering) but also in the social sciences (such as economics, sociology and political science). Mathematical models are used in economic research most extensively.

As defined by Eykhoff in 1974, a mathematical model is 'a representation of the essential aspects of an existing system (or a system to be constructed) which presents knowledge of that system in usable form'. Dynamical systems, regression models, statistical models, differential equations, or game theoretic models can be examples of mathematical models. Some practical applications of models involve combination of different types of models and abstract structures (Science Daily, 2016).

Variables are divided into six basic groups: output variables, input variables, decision variables, exogenous variables, state variables, and random variables. There may be many variables of each type, that’s why the variables are generally represented by vectors. Black box models and white box models is the other classification of mathematical modelling problems, according to how much information is available of the system, its process and internal interconnections of variables.

It is possible to describe a black-box model as a system of which there is no a priori information available. On the contrary, a white-box model (also called glass box or clear box) is a system where all necessary information is available (Science Daily, 2016).

Almost all systems or processes fall in between the black-box and white-box models, therefore this concept only works as an intuitive guide for approach. Generally it is better to use as much a priori information as possible to make the model more precise.

Regression analysis is one of statistical tools for finding out the relationships and interconnections between variables. Usually, the researcher seeks to prove right or wrong the causal effect of one variable upon another, for example, the effect of a price decrease due to changes in demand. Researcher gathers data on the variables and uses regression to estimate the value and direction of effect of the causal variables upon the variable that they influence. The researcher should also assess the statistical significance of the estimated relationships and interconnections, which is represented by the degree of confidence that the true relationship is close to the estimated relationship (Sykes, 2016).

At the start of a regression analysis, it is possible to state hypothesis about the relationship between the variables, also called factors or independent variables. The simplest regression model includes a single response variable Y and a single predictor variable or factor X. If there is a suspicion of outliers' presence, resistant methods instead of least squares can be used to fit the model. The Multiple Regression procedure fits a model relating a response variable Y to multiple factors X_1, X_2, ... X_N (Sykes, 2016).

In terms of statistical modeling, regression analysis is a statistical process for estimating the relationships between variables. It includes several methods and approaches for modeling and analyzing variables, focusing on the relationship between a dependent variable and one or more independent variables (predictors or factors). Regression analysis gives an insight to understanding how the typical or average value of the dependent variable (or criterion variable) changes when one of the independent variables is changing, while the other independent variables stay unchanged. Most commonly, regression analysis evaluates the mathematical expectation of the dependent variable given the independent variables, or in other words the average value of the dependent variable when the independent variables are fixed. Less

commonly, it is focused on a quantile, or other location parameter of the conditional distribution of the dependent variable given the independent variables. Nevertheless, in all cases the estimation target is a function of the independent variables called the regression function.

Regression analysis is sometimes used for prediction and forecasting, and its use has an important connection with the field of machine learning. At the same time, when results of regression analysis is being used for prediction it is very important to understand, that it cannot predict influence that did not happen in the data set.(Brooks, 2014)

Many techniques and methods for conducting regression analysis have been developed. Methods such as linear regression and ordinary least squares regression are parametric, in that the regression function is defined in terms of a finite number of unknown parameters that are estimated from the data. In addition, nonparametric regression deals with methods that allow the regression function to be determined by a specified set of functions, which may be infinite-dimensional (Sykes, 2016).

Classical assumptions for regression analysis are (Sykes, 2016):

- the sample is representative of the population for the inference prediction;

- the error is a random variable with a mean of zero conditional on the explanatory variables;

- the independent variables are measured with no error;

- the independent variables (predictors) are linearly independent, i.e. it is not possible to express any predictor as a linear combination of the others;

- the errors are uncorrelated, that is, the variance–covariance matrix of the errors is diagonal and each non-zero element is the variance of the error;

- the variance of the error is constant across observations (homoscedacity),if not, weighted least squares or other methods might instead be used.

These conditions are sufficient for the least-squares estimator. Actual data rarely satisfies the assumptions. But the method is used even when not all of the assumptions are true. Variation

from the assumptions can sometimes be used as a measure of how far the model is from being useful (Sykes, 2016).

The typical data for analysis consist of error-free independent variables (explanatory variables),x, and their associated observed dependent variables (response variables),y. Each dependent variable is modeled as a random variable with a mean given by a function f(x,β). There may be a systematic error but its treatment is outside the scope of regression analysis. If the independent variables are not error-free, this model turns into an errors-in-variables model, which is also outside this scope.

One of the common types of regression model is linear model. For example, such a model could be something like:

$$y = \beta_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + u, \quad (1)$$

or more compactly

$$y = X\beta + u, \quad (2)$$

with the assumption that $u_t = N(0, \sigma^2)$.

The properties of linear estimators and regression models are very well researched and very well understood. In some cases, it is possible to transform a non-linear model into linear by using, for example, logarithmic transformation (Brooks, 2014).

Linear structural (and time series) models are sometimes unable to explain a number of important features common to much financial data, including leptokurtosis – that is, the tendency for financial asset returns to have distributions that exhibit fat tails and excess peakedness at the mean.

3 Literature Review

3.1 Theoretical basis of research and main definitions

Concepts of capitalization, equity and its relations are central to contemporary economics and finance.

Different researchers and scholars all over the world use the term of capitalization to describe several different concepts. First is the process of creating asset. Such term can describe any activity which leads to create an asset which can produce income. This term usually applies to the process of increasing value of an asset therefore increasing its ability to produce income. Works of different scientists touches upon the process of knowledge capitalization, human resources capitalization and others.

Other description of the term comes from security markets. Market capitalization stands for the value of the company which is estimated by stock market. It is the product of current stock price and amount of stocks outstanding. This term can also describe value which stockholders own. Market capitalization or market cap uses to evaluate the stock market, and is widely used to calculate stock market indexes which are often used as benchmarks.

The concept of equity is tightly connected with market value and market capitalization. Most of the authors give one of the following terms of equity (according to various types of the term) (Bender et al., 2013):

1. A stock or any other security representing an ownership interest. This may be in a private company (not publicly traded), in which case it is called private equity.

2. On a company's balance sheet, the amount of the funds contributed by the owners (the stockholders) plus the retained earnings (or losses). Also referred to as shareholders' equity.

3. In the context of margin trading, the value of securities in a margin account minus what has been borrowed from the brokerage.

4. In the context of real estate, the difference between the current fair market value of the property and the amount the owner still owes on the mortgage. It is the amount that the

owner would receive after selling a property and paying off the mortgage. Also referred to as "real property value."

5. In terms of investment strategies, equity (stocks) is one of the principal asset classes. The other two are fixed-income (bonds) and cash/cash-equivalents. These are used in asset allocation planning to structure a desired risk and return profile for an investor's portfolio.

6. When a business goes bankrupt and has to liquidate, the amount of money remaining (if any) after the business repays its creditors. This is most often called "ownership equity" but is also referred to as risk capital or "liable capital."

More generally, the term's meaning depends very much on the context. In finance in general, it is possible to think of equity as one's ownership in any asset after all debts associated with that asset are paid off. For example, a car or house with no outstanding debt is considered entirely the owner's equity because she or he can instantly sell the item for cash, with no debt standing between the owner and the sale. Stocks are also called equity because they represent ownership in a company, though ownership of shares in a publicly traded company generally does not come with accompanying liabilities.

Shareholder's equity is already mentioned but still very important term, which is directly related to capitalization. Shareholders' equity is equal to a firm's total assets minus its total liabilities and is one of the most common financial metrics employed by analysts to determine the financial health of a company. Shareholders' equity represents the net value of a company, or the amount that would be returned to shareholders if all the company's assets were liquidated and all its debts repaid (Investopedia, 2016a).

Inspite the fact, that these approaches have obvious differences, they have similar foundation. Capitalization as a term is being used to describe a vehicle or a process of generating (or creating) value for stakeholders, mostly shareholders or private owners. Value is used here to describe economic benefits comes from the asset, which can be incomes or cash flows. As one of the key elements of financial economics, capitalization of an asset should be properly evaluated. It is almost impossible to calculate exact capitalization of a company as an asset because capitalization always relates to some moment in future, thus every method of evaluating

capitalization counts level of possibility. Most of the capitalization evaluating methods tries to forecast future returns of a company as a financial asset and it means that the possibility of this evaluation to become a reality is less then 1.

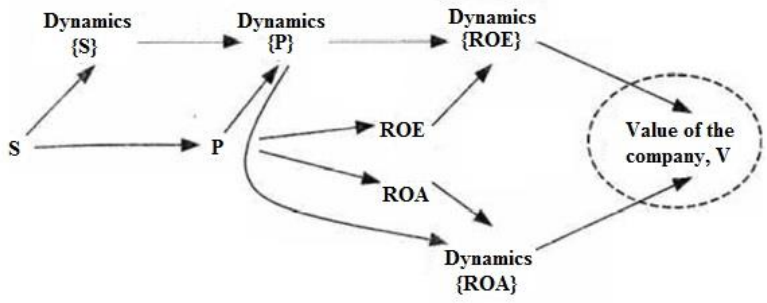
The problem of equity may be formulated very much similar to shareholder's equity. It is a proven basis of positive possible outcome for a potential holder. This approach gives an opportunity to apply different already existing models to research equity and capitalization, which involves different factors like return, risk, residual income, dividends, and financial indicators of the companies.

Capitalization can also be described as a process of increasing equity. From this point of view the concept of capitalization is deeply connected with stakeholder's decision making through the results of their decisions. This decision making on day-to-day basis forms operational management of any enterprise or business. Current levels of capitalization and equity is an unavoidable background for every practicing corporate manager.

Besides, capitalization and equity is important for strategic management through the processes of business evaluation, as the result of this processes is of key importance to investors, owners and top management of the enterprise, because business evaluation is very often used to prepare strategic decisions like mergers and acquisitions.

Scherbakov formulates this interconnection of capitalization and management through the idea of business financial goal, giving a brief but thorough model involving several indicators, which is shown on Figure 1 (Scherbakov et al., 2006).

Figure 1. Interconnection of indicators



Source: Scherbakov et al., 2006.

Scherbakov sights, that value of the enterprise is under the influence of two main factors: return on equity (ROE) and return on assets (ROA). These two indicators can be considered as crucial to the understanding the concept of capitalization of any enterprise or business (Scherbakov et al., 2006).

Even if we take aside the problems of operational and strategic management, the problems of equity and capitalization are still directly connected with financial system and economics. Taking into consideration the conditions of economic sanctions and capital movement restrictions, the problems of investment decisions arose as one of the central in Russian economics and finance. At the same time every investment decision is based on evaluation of assets, and most of the times evaluation considers current capitalization and equity as determinative factors in decision making.

As described above, it is possible to see that capitalization and equity is tightly connected with different sides of every enterprise: operational and strategic management, investments, finance and economic growth. All of this surely proves the importance of studying problems of capitalization and equity.

3.2 Scientific approaches to studying theoretical basis of valuation problems

As a result of the years of financial markets' development different approaches as well as methods of accounting-based concepts for capitalization evaluation (or equity valuation) have been introduced. There is no exact answer to the question of whether there is only one right method to evaluate capitalization or equity. Many researches apply these methods to different historical data and find out that they work well for different, not equal, circumstances.

James Ohlson and Erik Johannesson examines three accounting-based equity valuation concepts: Residual Income Valuation (RIV); the irrelevance of a firm's dividend payout policy (supported by Miller-Modigliani); betas/CAPM, to quantify risk and capitalization factors. This research had been conducted with elements of case study, as the scholars stated three main questions: whether the concepts taught and described in previously published textbooks make empirical sense; whether RIV help us to explain observed stock prices; whether stock prices reflect discount factors as inferred from betas. As a result of the research the scholars found out that RIV was not valid for the given data collection while they proved right the dividend-payout irrelevance (only relevant for so-called bird-in-the-hand hypothesis). But the most interesting is the fact, that betas can still help to explain capitalization multiples. It means that CAPM model, which have been attempted to be proved wrong by many different scholars, still can be used (to some extent) to evaluate capitalization (Ohlson et al., 2015).

RIV is one of the simplest approaches of evaluating capitalization. This approach is represented by several methods which take into consideration such measures as economic profit (EP), economic value added (EVA) and cash value added (CVA) etc. Fernandez in 2001 showed that it is a mistake to consider EP, EVA or CVA as a measure for the firm's "value creation" in each period. It is more convenient to use EP, EVA or CVA to benchmark manager's performance. Some of the financial specialists tend to give these parameters the meaning that they do not have, because value always depends on expectations, while these parameters only accounts results of economic and financial activities of the company. The scholars claim that accounting-based measures cannot measure value creation. At the same time, author admit that it is possible to value firms by discounting EVA, EP or CVA, but it is very important to understand that these

parameters are not cash flows and their economic meaning is not so clear as it is for cash flows (Fernandez, 2001).

In order to check whether such parameter as EVA are appropriate to estimate value creation by public companies, scholars checked correlation between annual increase of EVA, NOPAT, WACC and annual increase of market value for 582 companies for the period of ten years using data provided by Stern Stewart. For 296 companies (out of 582) the correlation "between the increase in the MVA each year and the NOPAT was greater than the correlation between the increase in the MVA each year and the EVA. There are 210 companies for which the correlation with the EVA has been negative! The average correlation between the increase in the MVA and EVA, NOPAT and WACC was 16%, 21% and –21.4%. The average correlation between the increase in the MVA and the increases of EVA, NOPAT and WACC was 18%, 22.5% and –4.1%" (Fernandez, 2001).

Further researches of Pablo Fernandez also showed that discounting EP, EVA and CVA to measure value creation of a company always yield the same value as Discounted Cash Flow Valuation models (Fernandez, 2015). By giving a simple example of an investment project, author shows a surprisingly mixed picture that for an investment project with time-limited duration the high values of EVA and MVA cannot tell that the company is doing well, because this parameters a highly connected with depreciation policy. Management can improve results by manipulating with depreciation, while company's wellbeing can be not so well. Author came to a conclusion: "It may happen that the EVA and the economic profit in one year have been positive, and even higher than expected, but that the value of the firm or business unit has fallen because the business's expectations have deteriorated due to poor management." (Fernandez, 2015)

Because of the fact, that changes in amount of shares outstanding is quite unusual for most of the companies, it is quite obvious that market capitalization of a company or corporation has a direct connection to its share price. As a result, evaluation of a share price is important for investment decisions, and has influence on the price to some extent. Among others, one of the simplest evaluation methods comes from Corporate Finance and is called Gordon growth model (Welch, 2011).

$$Stock\ Price\ P\ Today = \frac{Dividends\ D\ Next\ Year}{r-g} \quad (6)$$

Gordon growth model is also called the growing perpetuity model, as it shows what should be the price of a share according to dividends next year and opportunity cost r, and if its dividends will grow eternally by rate g. This model can give a rough estimate of a stock price, but in most practical situations it cannot be accepted because it assumes the conditions of a so-called perfect market. It simply means that there are no taxes, no transaction costs, no differences in information between investors, an infinite amount of buyers and sellers, no inflation, no risk or uncertainty, no changes in interest rate. Nevertheless, Gordon growth model reveals principal relationships between dividends, its growth rate and opportunity cost.

Considering approaches to capitalization factors determination many Russian and foreign scholars turn to systematization of them. Demidenko suggests two large groups of factors which influences capitalization: fundamental and non-fundamental. Each of groups has a subdivisions by criteria of measurability and economic level of emergence. This classification comes from systematic approach. Author suggests systematic approach for analysis of market capitalization as a special type of valuation by stock markets. Scholar also mentions that these groups of factors can be further expanded by such parameters like currency rates, real production indicators (GDP of RF, GDP of USA etc), stock market indices, commodity prices, prosperity level indicators (unemployment level, average wage etc), corporation financial reports (net profit, cash flow, net assets) (Demidenko, 2010).

The researcher also shows several types of connections between different factors: “The simplest functional connection is the proportional dependence between two indicators or more, which means that one defined value of an indicator corresponds convenient value of a factor. Another type of connection can be represented by a complex dependence between economic indicators when one value of a factor corresponds several values of an indicator”. Authors concludes that “such interconnection between factors and indicators is called stochastic (or correlational). Such interconnection can be revealed only by studying a set of observations, while proportional can be revealed in every separate case.” (Demidenko, 2010)

Ratings can be considered as further development of factor's classification. Nalivaiskiy and Demidenko suggest rating method of factors influencing capitalization. Authors note that these factors may appear in a different ways and different times, depending on economic cycles and level of social-economic development of the society. They can interact between themselves, strengthening or weakening their influence. Among others, factors differ in relation to the period of influence. They may have one-time, interval or constant influence (Nalivaiskiy et al., 2010a).

Continuing their work, authors suggested several quantitative factors which may have some influence on capitalization of biggest Russian corporations. Some of them had linear influence:

- Company cash flow;
- Net profit;
- RTS index;
- GDP of USA;
- S&P500 index;
- SSEC index;
- Brent oil price.

The most powerful factor out of this group was RTS index, followed by S&P500 index, SSEC index and Brent oil price.

Other group of factors showed non-linear influence:

- GDP of RF;
- Dollar/ruble exchange rate;
- Unemployment level at RF;
- Living wage at RF;
- Average wage at RF;

The most powerful factor out of this group was dollar/ruble exchange rate (Nalivaiskiy et al., 2010a).

Authors also suggested one of the approaches to estimate the influence of qualitative factors, such as political factors. This approach advises to determine the date where some

political event took place, then compare capitalization of the company at the day before the event, at the day of the event and the day after the event. The result of this research shows that market volatility significantly increases these days and prices may fluctuate from minus 13% up to plus 14% as a result of the event.

This approach had been used by the authors in another research to study influence of political factors on capitalization of Russian biggest public company, so-called "Russian blue chips". Nalivaiskiy and Demidenko listed major political events or the period of 2007 to 2010, both internal and external, to find out how market cap changed during the time of these events. Despite the fact, that authors could not take into account all political and financial events in the world, they found out that most of political events had negative influence on market capitalization of Russian blue chips, mostly for oil & gas industry companies and banks (Nalivaiskiy et al., 2010b).

Demidenko suggests one of possible classifications of the factors influencing capitalization of public companies, which is showed in Appendix 1 (Demidenko, 2010).

Generally this approach is based on dividing factors into fundamental and non-fundamental groups, then dividing both qualitative and quantitative factors between levels of origins. As a result this approach can help to determine the interconnections between factors, as well as their allocation. For example, financial condition of business belongs to microeconomic level, while infrastructural factors belong to macroeconomic level. It is quite obvious to notice that dependence between these factors are very weak, if not equal to zero. By using this approach we can also definitely divide non-fundamental factors from others, like political and legal ones, and study them separately.

But among others, the most noticeable advantage of suggested approach is the opportunity to easily separate quantitative and qualitative factors. This separation is crucial to figure out which methods are available to evaluate them. Quantitative factors are more applicable for quantitative analysis methods like regression analysis and trend analysis. Qualitative factor can also be an object of numerical analysis but the data should be prepared first, and this fact brings in additional step of data processing, which may add errors.

The concept of capitalization is closely connected with problems of return on investments, equity and modern portfolio theory. One of the most interesting is the concept of factor investing. Barra, which is MSCI company now, has been undertaking the research of factors since the 1970s (Bender et al., 2013).

Bender, Briand, Melas and Subramanian highlight that a factor can be thought of as any characteristic relating a group of securities that is important in explaining their return and risk. A large body of academic research highlights that long term equity portfolio performance can be explained by factors. Furthermore, factor investing is the investment process that aims to harvest these risk premiums through exposure to factors. Researchers generally notes only six equity risk premium factors, which are Value, Low Size, Low Volatility, High Yield, Quality and Momentum (Bender et al., 2013).

The scholars also suggest “a family of factor indexes that are designed to reflect the performance of those six equity risk premia factors. Indexation is seen to be a powerful way for investors to access factors in cost-effective and transparent ways. Factor allocations can be implemented passively using factor indexes, which may bring potential cost savings to institutional investors. In addition, factor indexes bring transparency to factor allocations, which helps alleviate the well-known problem of manager style drift and has positive implications for risk management” (Bender et al., 2013).

4 Practical part

4.1 Overview of the NCSP historical performance and strategy

Sources of capitalization and equity formation cannot be discussed without providing an outlook of transport company and world practice of seaport ownership and organizational structure.

Seaports and transport enterprises all over the world fall into one of two types of ownership structure: public or private. Differences between these two types of ownership could be viewed from different perspectives: national wellbeing perspective and transshipment market.

It is generally accepted that private port operation can lead to charging higher prices; but since port charges are strategic complements, higher prices (and therefore delegating the pricing decision to a private port operator) can be beneficial for a country. From the transshipment market point of view privatization is clearly harmful, as it aims to better exploit the transshipment customers (Czerny et al., 2013).

At the same time it is well understood that private operation might imply lower cost than public operation. Whenever there is a significant transshipment demand from outside the own jurisdiction, from a purely national perspective, a national government should consider privatization. This is true even though privatization (i.e., with no cost effect) tends to lead to higher prices and therefore lower domestic consumer surplus.

From the transshipment market point of view, customers from abroad benefit if a port is left public, because service prices in this case remains lower, because the port operator still deals with national customers and governor is interested in providing lower prices for them (Czerny et al., 2013).

Discussions of problems of capitalization and equity of transport enterprises in Russia always refers to the most noticeable and biggest public enterprise in sea transport industry, the Novorossiysk Commercial Sea Port (NCSP), which is also known as NCSP Group due to the fact, that company owns several enterprises at different geographical locations.

Novorossiysk Commercial Sea Port is one of the examples of public enterprise in the industry of sea transport, stevedoring and port infrastructure. At the same time, it is one of the most developing and remarkable companies of the South Russia. The Group is a leading stevedoring company in Russia, with the 3rd largest freight turnover place among European seaports. Only seaports of Rotterdam and Antwerp have higher freight turnover results in 2015 than NCSP. NCSP Group includes eight stevedore companies with various specialization, operating among Black Sea and Baltic regions. Group includes Novorossiysk and Primorsk, the two largest ports by freight turnover in Russia, taking leading positions on the stevedore services market (NCSP, 2015).

Novorossiysk is the largest seaport in a Black sea region in Russia. In 2015 Novorossiysk port's freight turnover reached 139,7 mln tons. NCSP has more than 95% of the cargo at the port and more than 45% of freight turnover in Black Sea region.

NCSP Group includes Primorsk seaport. It takes the leading position among ports of Baltic region with 59,6 mln tons. About 13% of Russian ports' total freight turnover and 26% of Baltic region ports' is concentrated at Primorsk. NCSP Group company PTP PLC has 100% of cargo at the Primorsk port.

Container terminal (Baltic Stevedore Company PLC) at Baltiysk (Kalininrad region) is another NCSP Group owned port in Baltic region. In 2015 it operated with near half of all freight turnover of Kaliningrad region, which consisted of near 7% of all region's freight turnover.

One of the biggest assets of the NCSP Group is Novorossiysk port. Port is situated at the East part of Black Sea on the coast of Novorossiysk (Tsemes) Bay.

Main features of the Novorossiysk port are:

- Competitive geographical position. The port is situated on the crossing of international transportation channels, connecting Russia with Mediterranean, Middle East, Africa, South and South-East Asia, North and South America;
- The only deep-water port in south of Russia. NMTP Group owns the deepest marinas in CIS and Baltic: the maximum depth of oil pier – 24,5 m; pier for transshipment of bulk, general and containerized cargo – 14,5 m;

- Favorable natural conditions. Not freezing Cemes bay provides work around the year, and existing fortifications and breakwaters serves as sufficient protection for the port's objects, allowing minimizing downtimes due to weather conditions;
- Enough supply of storage area;
- High degree of handling equipment;
- Developed automobile, railroad and pipeline's infrastructure.

As an operator of marine port terminals, NCSP Group provides a range of stevedoring services for transshipment of all types of cargo, including liquid, bulk, general cargo and container cargo. The Group also provides additional port services and auxiliary port fleet services (NCSP, 2015).

The Group earns most of its revenue from providing stevedoring services, rates for which are set per unit of cargo (one tonne or one container). The Group is a natural monopoly, but can freely set tariffs for stevedoring services according to market conditions. The Federal Tariff Service of Russia replaced direct price regulation at most Russian seaports with price monitoring as of 2013.

The Group can grow the revenue and profitability of its core business by increasing the physical volume of cargo handling and related additional services, increasing the share of high-margin cargo in cargo turnover, and by raising tariffs for cargo handling and provision of other services.

The Group is seeking to expand cargo handling volumes by building new and modernizing existing terminals, increasing labor productivity, optimizing logistics, introducing new transshipment technologies and automating business processes.

NCSP Group's clients include the leading Russian producers and exporters of resource commodities, including crude oil and oil products, ore, metals, coal and fertilizer; importers of manufactured goods and equipment; as well as leading international logistics companies and container lines.

NCSP Group generates added value for its clients by providing access to the most economically efficient mode of transport – marine – and optimization of costs at related links in the logistics chain.

The Group is increasing the overall throughput capacity of port facilities by dredging and modernizing docks for receiving large capacity vessels; modernizing terminal equipment to accelerate cargo loading/unloading; accelerating customs processing of cargo; providing additional services for processing cargo at port; optimizing management of rolling stock; and introducing block train shipments.

Increasing the efficiency and throughput capacity of port facilities makes it possible to handle more cargo while optimizing shippers' expenditures on rail transport, cargo storage and shipment of cargo by sea. NCSP Group has drafted a Long-term Development Program (LDP) to the year 2020 that was approved by Board of Directors on January 15, 2015 (NCSP, 2015).

The LDP calls for investing 30 billion-35 billion rubles in Group development projects, and anticipates the allocation of about 14 billion rubles in government funding for the reconstruction of federally-owned infrastructure such as docks and access channels. The goal of the LDP is to establish a long-term policy for modernization, innovative development, and increasing NCSP Group's competitiveness and efficiency.

The implementation of NCSP Group investment projects in the medium term to 2020 will make it possible to increase cargo turnover at Novorossiysk Commercial Sea Port by 29 million tons of dry cargo, and enable the Group to maintain its leading positions in Russia and become one of the world's largest transport and logistics companies.

Coordinating NCSP Group's development with the federal special program for Development of Russia's Transport System and subprograms, as well as with the development plans of other stevedoring companies, will make it possible to fully meet the growing demand for export-import port capacity in the Azov-Black Sea and Baltic basins.

The duration of the program is therefore set within the timeframe of long-term strategic documents in the area of transport that have been adopted at the federal level. The program will

be implemented by carrying out the measures it prescribes according to a timetable that coincides with that of federal special programs in the transport sector (NCSP, 2015).

The program articulates the key elements and priorities of the Company's development. The LDP includes the following objectives:

- Expanding the range of services provided;
- Increasing the equipment resources of port operations;
- Creating favorable conditions for port users to efficiently conduct foreign trade activities;
- Implementing a flexible tariff policy that takes into account the price and geographical advantages of competing ports;
- Developing an e-document flow system with customers and partners;
- Improving technology and introducing the latest cargo handling methods;
- Implementing an investment program that meets current and anticipated market needs.

NCSP Group stocks are owned by many institutional and private investors all around the world, both large and small ones. Many of them buy these stocks to diversify their investment portfolios, while others focus their investments on transportation sector.

Financial analysis is connected with preparing reports using calculated ratios on the basis of the information taken from financial statements, annual and other reports. On most markets in the world financial reports of publicly traded companies are freely accessible. These reports are usually presented to top management and shareholders as one of the basic information in making business decisions. Financial analysis may determine if a business will continue or discontinue its main operation or part of its business as well as make or purchase certain materials in the manufacture of its product. It also may show whether the company may issue stocks or negotiate for a bank loan to increase its working capital.

Comparing financial ratios is not the only way of conducting financial analysis. Financial ratios are almost useless alone and therefore face several theoretical challenges. Ratios say little about the firm's prospects in an absolute sense. The insights about relative performance require

a reference point, for example from other time periods or similar firms in the same industry or market. A ratio alone contains almost no meaning and can lead to misleading results. As indicators, ratios can be logically interpreted in at least two ways. It is possible to partially overcome this problem by combining several related ratios to construct a more comprehensive picture of the firm's performance. Seasonal factors may prevent year-end values from being representative. A ratio's values may be distorted as account balances change from the beginning to the end of an accounting period. It is always better to use average values for such accounts whenever possible. Financial ratios are no more objective than the accounting methods employed. It is very important to mention, that changes in accounting policies or choices can yield drastically different ratio values.

Financial analysts can also use percentage analysis which involves reducing a series of figures as a percentage of some base amount. For example, a group of items can be expressed as a percentage of net income. Proportionate changes in the same figure over a given time period expressed as a percentage is known as horizontal analysis. Vertical or common-size analysis, reduces all items on a statement to a common size as a percentage of some base value which assists in comparability with other companies of different sizes. As a result, all income statement items are divided by sales, and all balance sheet items are divided by total assets. At the same time, financial ratios' formulas can be modified for the purposes of specific analysis, thus giving more convenient information for evaluating and decision making.

In this relation, in several situations it is more appropriate not to use standard and generally accepted financial ratios as quick ratio, current ratio, return on assets and return on equity, as there is no similar object of analysis to compare with. The example of Russian transport sector is one of those, as there are none of the companies except NCSP which are publicly traded on the stock exchange.

Financial analysis of NCSP Group current condition is able to show all advantages and disadvantages of the company as a financial asset today, and may help to determine factors of its capitalization and equity.

4.2 Current NCSP financial state

Taking into consideration mentioned points and current financial statements of NCSP Group it is possible to say, that the company faces some serious challenges. Main financial indicators taken from the statement of comprehensive income are represented in the Table 1.

Table 1.Horizontal analysis of Statement of Comprehensive Income

№	Indicator	2015 year, thousands of US dollars	2010 year, thousands of US dollars	Variance, thousands of US dollars	Variance, %
1	Revenue	877191,00	635315,00	24876,00	38,07%
2	Cost of services	-237643,00	-242069,00	4426,00	-1,83%
3	Gross profit	639548,00	393246,00	246302,00	62,63%
4	Operating expenses	-350609,00	-46774,00	-303835,00	649,58%
5	Other operating income, net	1467,00		1467,00	
6	Operating profit	290406,00	346472,00	-56066,00	-16,18%
7	Finance income	47403,00	18632,00	28771,00	154,42%
8	Finance costs	-92289,00	-30401,00	-61888,00	203,57%
9	Share of profit/(loss) in joint venture, net	4147,00		4147,00	
10	Foreign exchange loss, net	-375697,00	-12753,00	-362944,00	2845,95%
11	Other income/(expense), net	2417,00	928,00	1489,00	160,45%
12	Profit/(Loss) before income tax expense	-123613,00	322878,00	-446491,00	-138,28%
13	Income tax expense	40186,00	-64438,00	104624,00	-162,36%

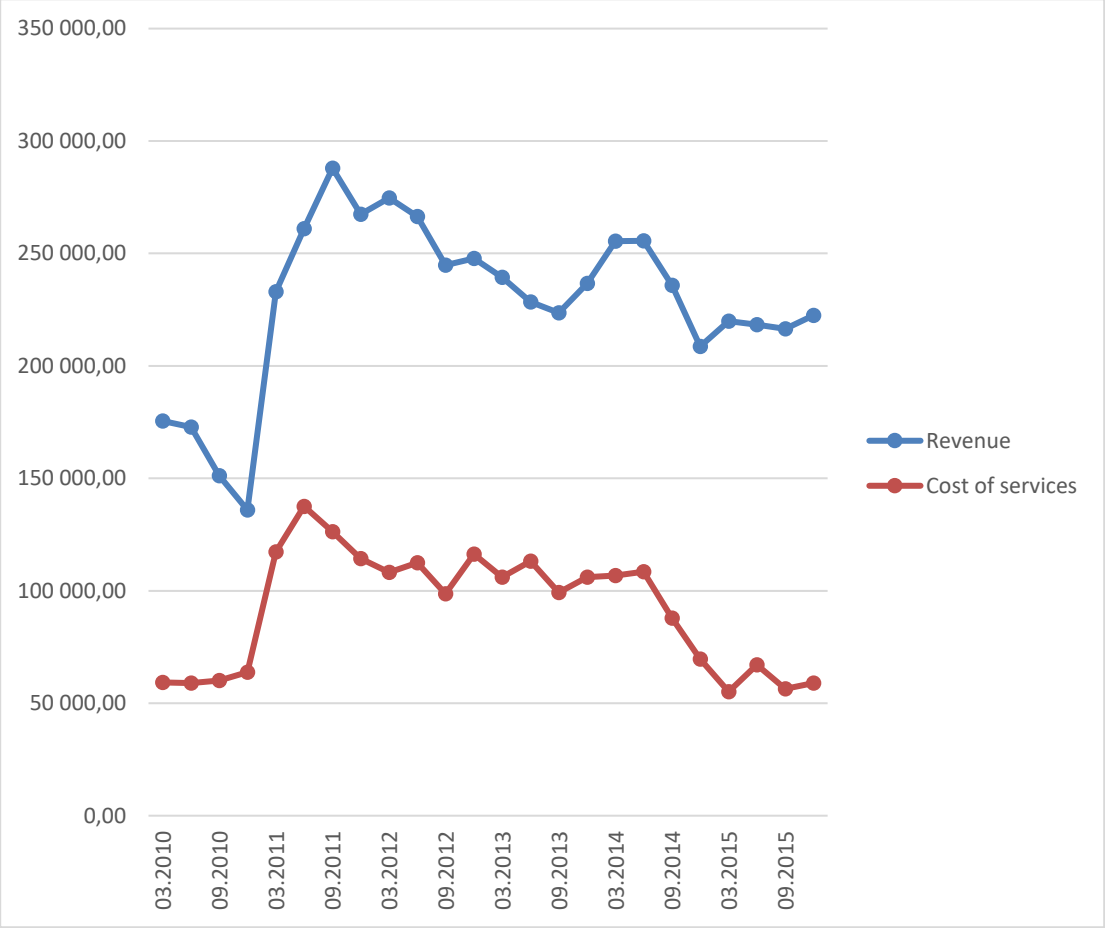
14	Profit/(Loss) for the year	-83427,00	258440,00	-341867,00	-132,28%
15	Other comprehensive (loss)/income for the year, net of tax			0,00	
16	Effect of translation to presentation currency	-30491,00	-6873,00	-23618,00	343,63%
17	Remeasurement of net defined benefit liability	-1615,00		-1615,00	
18	Total comprehensive profit (loss) for the year	-115533,00	251567,00	-367100,00	-145,93%
19	Basic and diluted profits/(losses) per share, US dollars	-0,0040	0,0131	-0,02	-130,53%

Source: NCSP, 2014, 2015, own calculations.

Horizontal analysis of statement of comprehensive income shows, that the most significant change happened with foreign exchange loss indicator. For the period of 2010-2015 losses due to currency risk increased by 2845% from -12.753 mln USD to -375.697 mln USD. Other financial indicators show contradictory performance. Other significant change is connected with operating expenses. During the period of 2010-2015 this indicator changed by 649% from 46.774 mln USD up to 350.609 mln USD. Finance costs also demonstrated increase by 203% from 30.401 mln USD to 92.289 mln USD. Increased finance costs may indicate higher debt leverage and therefor higher risk associated with the enterprise. This particular issue would be described in more detail later on.

Revenues and costs, as one of the main indicators of companies operations, are showed in the Figure 2.

Figure 2.Revenue of NCSP for the period of 2010-2015



Source: NCSP, 2014, 2015, own calculations. All values are in thousands of US dollars.

From the first to the fourth quarter of 2010 the dynamics of revenue decreased from 175.515 mln USD to 135.943 mln USD, but then in the first quarter of 2011 revenue increased and reached 233.056 mln USD. In 2011 NCSP acquired the port of Primorsk (PTP), one of the key seaports near Saint-Petersburg, Russian Federation. This transaction increased assets of NCSP and was one of the main factors of increased revenue. Revenues peaked in the third quarter of 2011 and then started to slope downward till the fourth quarter of 2015. Cost of services stayed almost constant for all quarters of 2010, but from the first quarter of 2011 cost of services mostly followed the dynamics of revenues. The only exception exists for the first half of the year 2014, when significant revenue growth was not accompanied by growth of costs.

Among with revenues, it is crucial to mention the historical performance of gross and operating profits, as they may show a picture of management effectiveness and efficiency. Figure 3 shows the historical performance of these indicators.

Figure 3.Gross and operating profit of NCSP for the period of 2010-2015

Source: NCSP, 2014, 2015. All values are in thousands of US dollars.

Gross and operating profits of NCSP for the period of 2010-2015 shows different picture. Before 2011, the year of acquiring Primorsk seaport, both gross and operating profits declined. Purchasing of Primorsk increased gross profit almost twice, and it also increased operating profits almost three times, which can be considered as positive. Growth of gross profit followed the dynamics of revenue from beginning of 2010 till third quarter of 2014, when with revenue declining by 7.7% gross profit stayed almost the same.

During the most of the quarters, operating profit of NCSP followed the dynamics of gross profit, except for the fourth quarters of 2012, 2013, 2014 and 2015. Significant change in operating profits for 2012-2014 is connected with impairment of goodwill, as it is described in company's quarter and annual reports. After the purchasing the seaport of Primorsk, NCSP received goodwill on its balance sheet, and according to accounting rules it should be annually assessed for the estimating fair value of each cash-generating unit (CGU). The goodwill which NCSP received after acquiring Primorsk was connected with the opportunity of oil transport through the port due to its competitive geographical position. At the same time, this opportunity is constrained by the delay in the construction of railway to the port. The construction was expected to finish in 2013, but due to reasons which are out of NCSP influence it is expected to finish in 2017.

It is very important to emphasize the origin of the goodwill. The amount of 1,205 mln USD originated from the difference between book value of acquired enterprise, the PTP, and the amount actually paid. NCSP acquired 100% of PTP shares from OMIRICO LIMITED. The actual value of transaction is 2,153 mln, and taking into consideration net assets of acquired enterprise on the level of 947 mln USD, the premium paid by NCSP is equal to the amount of acquired goodwill. According to the company's historical financial performance this is a significant amount for the company.

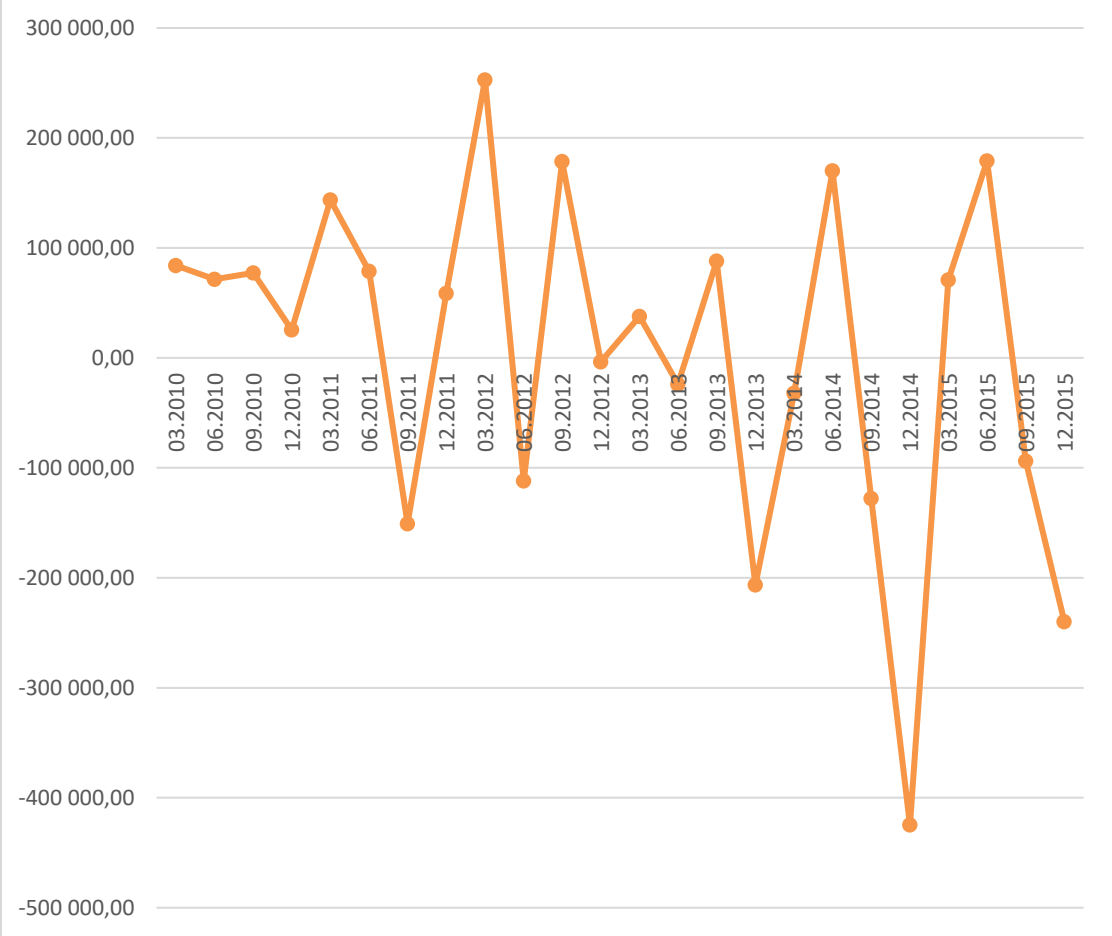
For the purposes of financing the transaction, NCSP increased leverage almost 7 times from 305 mln USD to 2,113 mln USD through the receiving a loan in the amount of 1,950 mln USD from Sberbank.

It is possible to suggest, that the deal was accepted by owners and management within the expectation of higher returns connected with oil export. At the same time, the assumed risk realized fully. It may point out the strategic mistakes in risk assessment and management, which were made by accepting investment decision.

Turning back to financial indicators, the situation of 2015 was completely different. NCSP had cash and deposits in several Russian banks, but the greatest amount of cash and deposits was allocated to Vneshprombank. On 22 December 2015 the Central Bank of Russia declared a moratorium for the satisfaction of the Vneshprombank creditors' claims, which

restricted access of NCSP to the cash and deposits. NCSP recorded a loss of 305.794 mln USD, which dropped operating profit to negative values.

Figure 4.Net profit of NCSP for the period of 2010-2015



Source: NCSP, 2014, 2015. All values are in thousands of US dollars.

Growth of net profit represented in the Figure 4 shows very controversy dynamics. In 9 quarters out of 24 the company showed net loss.

The most frightful out of all is currency risk, which started to influence the operations of the company in 2013 and continued in 2014 with strong changes on the Russian currency market. Dollar/ruble rate was upward sloping all the year at 2013 and 2014, and at the same time, NCSP Group had a bank credit from Sberbank nominated in US dollars. The company didn't have enough dollar liquidity and cash flows to eliminate currency rate rising and it forced company to buy currency on the market with current rates. As a result, financial indicators of

the company, especially total income and net working capital, began to worsen. It led to downward sloping of the stock prices and dramatically declining capitalization. Deloitte, who was hired to check financial statements of the company, told in its quarter report that they have significant doubts about whether the company will continue its operations [15].

As showed in the Table 2, net working capital became negative in 2014. Considering the real causes of it, it is possible to suggest that one of the obvious causes can be the fact that short-term part of long-term credits increased from 388.666 million dollars in 2013 to 1.722 billion dollars in 2014. Unfortunately it is very difficult to find real reasons of this issue because documents and information about it remains commercially confidential.

Table 2.Main Financial Results of NCSP Group in 2013-2015 years

Number	Indicator	2013 year, thousands of US dollars	2014 year, thousands of US dollars	Change to previous year, %	2015 year, thousands of US dollars	Change to previous year, %
1	Revenue	928090	955645	2,97	877191	-8,21
	In revenues, %	100	100		100	
2	Costs	-424456	-372709	-12,19	-237643	-36,24
	In revenues, %	45,73	39		27,09	
3	Gross Profit	503634	582936	15,75	639548	9,71
	In revenues, %	54,27	61		72,9	
4	Operating Profit	167131	482480	188,68	290406	-39,81
	In revenues, %	18	50,49		33,1	
5	Loss Before Income Tax	-68105	-492013	622,43	-123613	-74,88
	In revenues, %	-	-		-	
6	Loss	-104706	-414663	296,03	-83427	-79,88
	In revenues, %	-	-		-	

7	Effect of translation to presentation currency	-91260	-392594	330,19	-30491	-92,23
	In revenues, %	-	-		-	
8	Total Comprehensive Loss	-195788	-805654	311,49	-115533	-85,66
	In revenues, %	-	-		-	
9	Current Assets	511823	365315	-28,63	150512	-58,8
10	Current Liabilities	463487	1858608	301	396663	-78,66
11	Net Working Capital	48336	-1493293	-3189,4	-246151	-83,52

Source: NCSP, 2014, 2015, own calculations. All values are in thousands of US dollars.

The shortage of net working capital may be the result of financial covenants of Sberbank loan agreement. It is a common practice to include such conditions in credit agreement which provides certain constraints regarding financial status and indicators of the borrower. We cannot say for sure about presence of such conditions in agreement, because it is commercially confidential, but the financial dynamics of the company over last years and macroeconomic situation in Russian economy allows us to suppose it.

The year 2015 was also a challenging year for NCSP Group. Tough economic situation at Russia caused many commercial banks to go bankrupt. Like many other companies, NCSP had deposit in Vneshprombank, which went bankrupt in December 2015. By this time NCSP Group had deposits of total value near 296 mln US dollars, both in Russian roubles, euro and US dollars. Being a legal person, NCSP can claim its requirement, but it can only be satisfied from actual real assets of the bank. NCSP Group has already formed reserves for these losses in amount of near 305 mln US dollars. These reserves negatively influenced financial reports and caused Group to show losses for the period of the year 2015, even when revenues and EBITDA grew. Here we can see the situation when macroeconomic risk became reality.

As a conclusion to financial overview of the company, it is possible to say that today the company faces with significant difficulties and it is surely up to management whether it will overcome it. We can assume that results of econometric modeling will help us to predict the resulted capitalization according to management activities and financial statements.

4.3 Factors of equity and capitalization growth

Alekseev show different mechanisms of capitalization. He distinguishes five main mechanisms of capitalization growth. They are speculative, brand mechanism, marketing mechanism, ecological and informational mechanisms. According to author, the process of capitalization growth of NCSP Group falls into the categories of speculative and marketing mechanisms. Regarding speculative mechanism, it is possible to say that NCSP Group is a market company, which shares are traded on Moscow Exchange, therefore its capitalization is the object of speculations. Market capitalization of NCSP Group can dramatically changes during one trading day because of speculation, not just management efforts or operational results (Alekseev, 2011).

Considering marketing mechanism of capitalization growth, it clear that investments which NCSP Group makes during its operations aimed to increase sales, revenues and broadening services for clients. All of these investments could be considered as investments in marketing. By investing in marketing company broadens its market share, get new clients and as a result increases sales and profits, therefore increasing equity and capitalization of the enterprise.

Despite the fact that market capitalization shows instant market participants estimate of capitalization of the company, its capital and production factors do not change so quickly. Equity of the company, according to IFRS rules, is formed as a results of financial operations of the company. For NCSP Group, information regarding equity is showed in details in statement of changes in equity, which is the part of annual report. Table 3 shows information on equity of NCSP Group.

Table 3.Changes in equity of NCSP Group in 2013-2015 years

Number	Indicator	2013 year, thousands of US dollars	2014 year, thousands of US dollars	Change to previous year, %	2015 year, thousands of US dollars	Change to previous year, %
1	Equity	1118682	293773	-73,74	92771	-68,42
	In equity, %	100	100		100	
2	Share capital	10471	10471	0	10471	0
	In equity, %	0,94	3,56		11,29	
3	Treasury shares	-281	-281	0	-281	0
	In equity, %	-0,025	-0,095		-0,3	
4	Foreign currency translation reserves	-130371	-505673	287,87	-531609	5,13
	In equity, %	-11,65	-172,13		-573	
5	Retained earnings	1203686	763735	-36,55	599056	-21,56
	In equity, %	107,6	259,97		645,74	
6	Non-controlling interest	35177	25521	-27,45	15134	-40,7
	In equity, %	3,14	8,69		16,31	

Source: NCSP, 2014, 2015, own calculations. All values are in thousands of US dollars.

As we can see from the Table 3, share capital remained the same for the whole period of 2013-2015 with the value of $10,471 mln.

The most important information from the Table 4 is the fact that for past three years the equity of the company had been decreasing with almost constant dynamics. It decreased by 73,74% in 2014 and by 68,42% in 2015. Biggest part of these decreasing comes from foreign currency translation reserves. For the period of 2013 - 2014 losses increased almost three times, and raised by 5,13% in 2015.

The second most important source of equity decreasing is retained earnings. NCSP Group had losses for three years in a row, therefore decreasing retained earnings by value of losses. The fall is 36,55% in 2014 and 21,56% in 2015.

It is possible to mention that equity of NCSP Group is highly influenced by two decisive factors: foreign currency exchange rate and decreasing retained earnings due to losses for several years in a row. Retained earnings decreased because of several factors, e.g. impairment of goodwill and impairment of restricted cash in bankrupt Vneshprombank. Generally, events which affected equity decrease found in the analysis is summarized in the Table 4.

Table 4.Events affected NCSP equity decrease for the period of 2010-2015

№	Event	Year of effect	Effect for the equity, thousands of US dollars
1	Foreign exchange loss	2011	-167,940
2	Impairment of goodwill	2012	-89,456
3	Impairment of goodwill	2013	-259,903
4	Foreign exchange loss	2013	-125,353
5	Impairment of goodwill	2014	-221,473
6	Foreign exchange loss	2014	-789,115
7	Impairment of restricted cash in Vneshprombank	2015	-305,794

Source: NCSP, 2014, 2015, own calculations. All values are in thousands of US dollars.

Summary of events shows the factors, which affected NCSP equity during the period of 2010-2015, but it cannot show the strength of the connection. Nevertheless, financial analysis of the enterprise helps to answer one of the questions of current research: how financial condition of NCSP influences market capitalization? It is now clear that during the given period the financial state of the company was quite unstable, with growing volatility, which implicates additional risk connected with the shares of the company. Series of consecutive negative events moved main financial indicators up and down, creating uncertainty about future incomes from investing in share. It is important to mention, that during that period operational results of the enterprise including cargo turnover was steadily growing. Regarding this, it is possible to say

that market performance was under significant influence of financial management of the company and was not influenced significantly by operational performance.

The strength of connection between individual factors of market value can be evaluated by residual income valuation analysis and regression analysis, which are one of the most common tools. Next chapter covers the results of these analysis, enlightens interconnections between factors and gives answers to other questions of current research.

4.4 Overview of the data for econometric models

Data for regression analysis generally comes from NCSP annual and quarter reports, data from Moscow Exchange, Central Bank of Russian Federation and own calculations. Financial indicators are taken from financial reports of the company for the period of 1.01.2010-30.09.2016, market value of the company is calculated on the basis of daily prices for the period of 1.01.2010-30.09.2016, beta coefficients is calculated on the basis of data from Moscow Exchange for the period of 1.01.2010-30.09.2016. Market risk, which is used in regression modelling, has been calculated for the RTS Index for the period of 1.01.2010-30.09.2016.

For the purposes of residual income valuation analysis key interest rate of Central Bank of Russian Federation is taken as rate of return r used for calculating present values of cash flows. Current research assumes that rate of dividends growth g estimated by investors is equal to growth of net profit of the company. Dividends per share are taken from the company's financial reports for the period of 1.01.2010-30.09.2016 on a quarterly basis. The values of these rates and dividends is shown on the Table 5.

Table 5.Rates of return and dividends for residual income valuation analysis

Case number, t	Quarter	Interest rate r, %	Growth rate g, %	Dividends per share, US dollars
1	1Q2010	8,25	0,00	0
2	2Q2010	7,75	-14,68	0,004280822
3	3Q2010	7,75	8,11	0
4	4Q2010	7,75	-67,13	0
5	1Q2011	8,00	464,36	0
6	2Q2011	8,25	-45,13	0,000832429
7	3Q2011	8,25	-291,19	0
8	4Q2011	8,00	-138,84	0
9	1Q2012	8,00	331,95	0
10	2Q2012	8,00	-144,22	0,000802048
11	3Q2012	8,25	-259,77	0

12	4Q2012	8,25	-102,08	0
13	1Q2013	8,25	-1118,52	
14	2Q2013	8,25	-163,28	0,000755598
15	3Q2013	5,50	-467,88	0
16	4Q2013	5,50	-334,79	0
17	1Q2014	7,00	-84,41	0
18	2Q2014	7,50	-628,26	0
19	3Q2014	8,00	-175,14	0,000685563
20	4Q2014	17,00	232,41	0
21	1Q2015	14,00	-116,72	0
22	2Q2015	11,50	152,50	0
23	3Q2015	11,00	-152,31	0,004126479
24	4Q2015	11,00	155,84	0
25	1Q2016	11,00	-187,61	0,000768185
26	2Q2016	10,50	-26,84	0,007319749
27	3Q2016	10,00	-19,05	0

Source: Central Bank of Russian Federation, 2016, own calculations.

Before the third quarter of 2013 the key interest rate of Central Bank was equal to the refinancing rate. On September, 13th 2013 Central Bank changed the principle of assigning the key rate and defined currency repurchasing agreement rate as a key rate.

Table 6 shows description of variables for linear regression model of market value as a function of balance sheet indicators.

Table 6.Description of variables for linear regression model of market value as a function of balance sheet indicators

№	Variable	Indicator
1	y_t	NCSP market capitalization
2	x_{2t}	Non-current assets
3	x_{3t}	Current assets
4	x_{4t}	Total equity
5	x_{5t}	Non-current liabilities
6	x_{6t}	Current liabilities
7	x_{7t}	Long-term debt
8	x_{8t}	Foreign exchange rate RUB/USD

Source: own data.

NCSP market capitalization (or market value) is calculated according to the formula ___.

$$Market\ Value = Share\ Price * Number\ of\ Shares\ Outstanding \quad (7)$$

As share price changes constantly on the stock market, for the purposes of current research the price for the end of the each period (quarter) had been taken. Number of shares outstanding changes very seldom, and for the given period there were only two changes.

Other variables for the model are taken from balance sheet. Every variable is taken on a quarterly basis. The dataset has 27 cases.

Table 7 shows description of variables for linear regression model of market value as a function of CAPM model indicators. Table 8 shows description of variables for linear regression model of market value as a function of profit and loss (P&L) statement indicators.

Table 7.Description of variables for linear regression model of market value as a function of CAPM model indicators

№	Variable	Indicator
1	y_t	NCSP market capitalization
2	x_{9t}	NCSP shares return on investments
3	x_{10t}	NCSP specific risk
4	x_{11t}	RTS Index return on investments (return on market portfolio)
5	x_{12t}	RTS Index risk (market risk)
6	x_{13t}	NCSP beta coefficient

Source: own data.

Table 8.Description of variables for linear regression model of market value as a function of profit and loss (P&L) statement indicators

№	Variable	Indicator
1	y_t	NCSP market capitalization
2	x_{14t}	Revenue
3	x_{15t}	Cost
4	x_{16t}	Gross profit
5	x_{17t}	Operating profit
6	x_{18t}	Earnings before interest and taxes (EBIT)
7	x_{19t}	Net profit

Source: own data.

Calculation of NCSP shares return x_{8t} had been done for every case in the dataset according to the formula.

$$r_s = \frac{P_t}{P_{t-1}} - 1 \qquad (8),$$

where r_s – NCSP shares return; p_t – price of the share for every case t in the dataset.

NCSP specific risk x_{9t} was calculated for every case in the dataset according to the following:

$$\sigma_s = \frac{1}{n}\sum_{t=1}^{n}(p_t - \bar{p})^2 \quad (9),$$

where σ_s – standard deviation of NCSP share price; p_t - price of the share for every case t in the dataset; $\bar{p}$ – mean value of share price for the cases from 1 to t.

Both indicators are calculated on a quarterly basis.

RTS index return is an indicator, which show what can be a return to a portfolio consisting all shares of Moscow Exchange Stock Market, according to their weights in the portfolio. It is important to mention, that it is almost impossible to literary have all of the instruments of Moscow Exchange Stock Market, but for the purposes of hedging Moscow Exchange offers another financial instrument, RTS Index Futures. RTS Index Futures is a settlement futures, with no physical shares behind him. At the same time, any investor can benefit from index return with that instrument. For the purposes of current research, RTS Index is used to estimate market return and market risk for the given period.

Calculation of RTS Index return x_{10t} had been done according to the formula:

$$r_m = \frac{P_t}{P_{t-1}} - 1 \quad (10),$$

where r_m –RTS Index return; p_t – value of RTS Index for every case t in the dataset.

RTS Index risk (market risk) x_{11t} was calculated according to the following:

$$\sigma_m = \frac{1}{n}\sum_{t=1}^{n}(p_t - \bar{p})^2 \quad (11),$$

where σ_m – standard deviation of RTS Index value; p_t - price of the share for every case t in the dataset; $\bar{p}$ – mean value of share price for the cases from 1 to t.

NCSP beta coefficient x_{12t} is calculated according to the following formula:

$$\beta = \frac{r_{mt}}{Cov(r_{st}, r_{mt})} \qquad (12),$$

where β – NCSP beta coefficient; r_{mt} - RTS Index return for every case t in the dataset; $Cov(r_{st}, r_{mt})$ – covariation of r_{mt} and r_{mt} for every case t in the dataset.

All three indicators are calculated on a quarterly basis. The results of calculation of indicators are represented on the Table 9.

Table 9.Calculated values of return, risk and beta coefficient

Case number, t	Quarter	NCSP shares return on investments, r_s	NCSP specific risk, σ_s	RTS Index return on investments, r_m	RTS Index risk, σ_m	NCSP beta coefficient, β
1	1Q2010	0	0	0	0	0
2	2Q2010	-0,18709	0,000145	-0,15081	0,002843	-0,04677
3	3Q2010	-0,13441	0,000298	0,12865	0,008064	0,022148
4	4Q2010	0,054264	0,000267	0,177205	0,01084	0,04359
5	1Q2011	0,002914	0,000235	0,151913	0,010311	0,048987
6	2Q2011	-0,11304	0,000271	-0,06556	0,010458	-0,11077
7	3Q2011	-0,21543	0,000466	-0,30106	0,021189	-0,04185
8	4Q2011	0,049399	0,00053	0,035215	0,018724	0,331288
9	1Q2012	0,031986	0,00054	0,1881	0,019851	0,065158
10	2Q2012	-0,17498	0,000635	-0,17631	0,02093	-0,07429
11	3Q2012	0,080726	0,000653	0,093747	0,019706	0,139535
12	4Q2012	0,032518	0,000646	0,035719	0,01812	0,341006
13	1Q2013	0,163031	0,000601	-0,04692	0,016936	-0,22155
14	2Q2013	-0,21143	0,000617	-0,12343	0,016748	-0,09065
15	3Q2013	0,249612	0,000579	0,114379	0,016443	0,110215
16	4Q2013	-0,19596	0,000585	0,012184	0,015419	0,963284
17	1Q2014	-0,24171	0,000665	-0,14982	0,015754	-0,0855

18	2Q2014	0,001242	0,000725	0,114167	0,015577	0,108627
19	3Q2014	-0,37618	0,000895	-0,17741	0,016279	-0,08293
20	4Q2014	-0,49652	0,001162	-0,29635	0,019233	-0,06728
21	1Q2015	0,169655	0,001353	0,113455	0,019108	0,181082
22	2Q2015	0,433812	0,001448	0,067593	0,018524	0,317069
23	3Q2015	0,331621	0,001474	-0,1598	0,018592	-0,11361
24	4Q2015	0,120372	0,001473	-0,04139	0,017839	-0,41686
25	1Q2016	0,060823	0,001459	0,157403	0,018272	0,10898
26	2Q2016	0,18152	0,001422	0,06228	0,017766	0,273833
27	3Q2016	0,279411	0,00137	0,064581	0,017294	0,266268

Source: Moscow Exchange, 2016, own calculations.

4.5 Market evaluation by RIV and the influence of dividends

Residual income valuation or RIV approach is connected with both time value of money theory and capital budgeting technics. Main assumption behind these approaches contains in the fact that investors and current shareholders evaluates market price of a share at the level, which is equal to sum of present values of all future cash flows from the share.

$$Stock\ Price\ P\ Today = \frac{Dividends\ D\ Next\ Year}{r-g} \qquad (13)$$

Using estimated share price, market value can be calculated by multiplying share price and number of shares outstanding.

The results of evaluating share price and market capitalization are shown in the Table 10.

Table 10.Share price and market capitalization according to RIV method

Case number, t	Quarter	Dividends per share, US dollars	Estimated share price, US dollars	Number of shares outstanding, pcs	Estimated market capitalization, US dollars	Actual market capitalization, US dollars
1	1Q2010	0	0,0519	19259815400	999367756,33	3501212193
2	2Q2010	0,0042	0	19259815400	0	2846180815
3	3Q2010	0	0	19259815400	0	2463619448
4	4Q2010	0	0	19259815400	0	2597306199
5	1Q2011	0	-0,0002	19087586568	-3481698,23	2581581144
6	2Q2011	0,0008	0	19087586568	0	2289765263
7	3Q2011	0	0	19087586568	0	1796473100
8	4Q2011	0	0	19087586568	0	1885216425
9	1Q2012	0	-0,0002	18743128904	-4640558,36	1910408250
10	2Q2012	0,0008	0	18743128904	0	1576125061
11	3Q2012	0	0	18743128904	0	1703358658
12	4Q2012	0	0	18743128904	0	1758747737

13	1Q2013		0,0001	18743128904	1256894,11	2045478997
14	2Q2013	0,0007	0	18743128904	0	1613012735
15	3Q2013	0	0	18743128904	0	2015640687
16	4Q2013	0	0	18743128904	0	1620664569
17	1Q2014	0	0	18743128904	0	1228932789
18	2Q2014	0	0,0001	18743128904	2021125,28	1230459165
19	3Q2014	0,0007	0	18743128904	0	767587629
20	4Q2014	0	0	18743128904	0	386467257
21	1Q2015	0	0	18743128904	0	452033322
22	2Q2015	0	-0,0029	18743128904	-54851383,77	648130673
23	3Q2015	0,0041	0	18743128904	0	863064481
24	4Q2015	0	-0,0005	18743128904	-9940586,51	966953264
25	1Q2016	0,0007	0,0037	18743128904	69077416,41	1025765993
26	2Q2016	0,0073	0	18743128904	0	1211962815
27	3Q2016	0	0	18743273348	0	1550610345

Source: NCSP, 2014. 2015, Moscow Exchange, 2016, own calculations.

For the given data and given period the residual income valuation method gives very contradictory results. For example, share for several periods is negative, therefore market value for these periods are also negative. The reason of that lies in the volatility of interest rates and net profit of the enterprise. Estimated market capitalization and actual market capitalization are shown in the Figure 5.

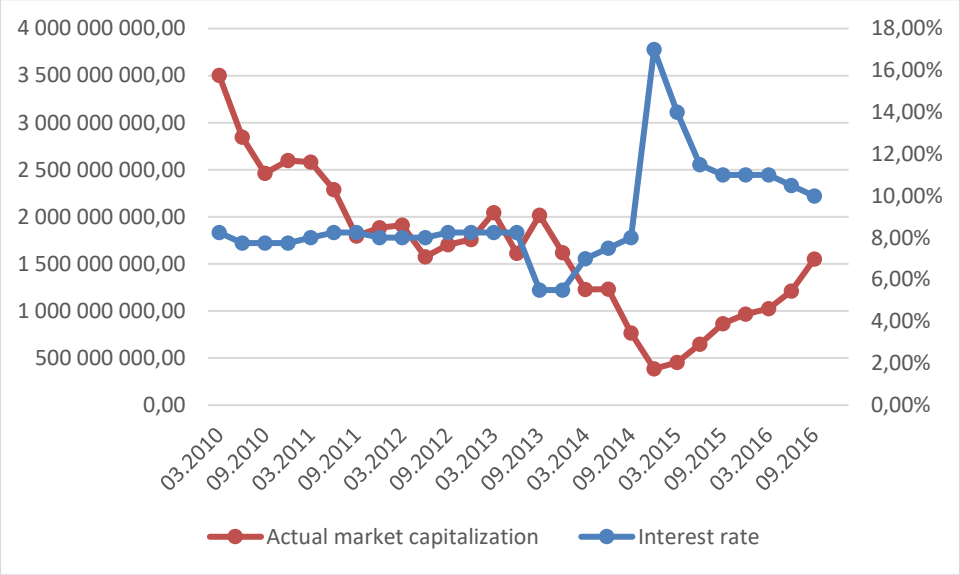
Figure 5.Estimated market capitalization and actual market capitalization

Source: Moscow Exchange, 2016, own calculations. All values are in US dollars.

Graphical representation of calculated values clearly shows the unacceptance of residual income valuation for evaluating market value of NCSP. Figure 5 shows a very high values of model error. It is quite clear, that market value for given prerequisites is under more significant impact of other factors, than dividends and interest rates.

Nevertheless, dependence on interest rates can be analyzed graphically. Graphical comparison of marker value and interest rates is shown on the Figure 6.

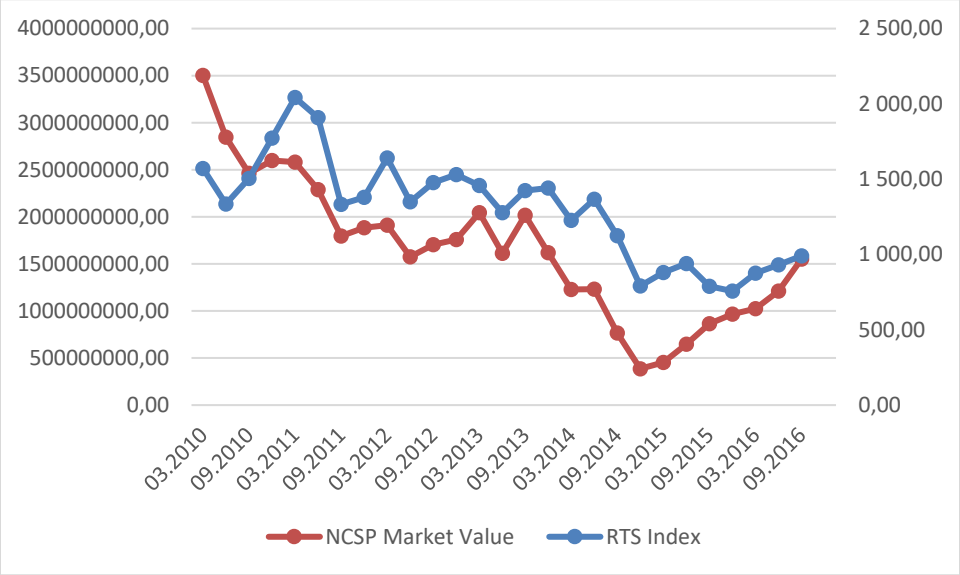
Figure 6.Market value and interest rates



Source: Moscow Exchange, 2016, Central Bank of Russian Federation, 2016, own calculations. All values are in US dollars.

Graphical comparison of market value and interest rate in Russian economy shows almost no codependency, except for the period of 06.2016-09.2016. Market value for this period shows negative correlation with interest rates. This dependence can be explained from the position of basic economic categories of money supply and demand. Lowering interest rates increases money supply for capital market, and as a result this money is used on stock market to buy assets. In relation to this point, it is interesting to compare NCSP market value performance and performance of RTS Index, which a benchmark of Moscow Exchange.

Figure 7.Market value and RTS Index



Source: Moscow Exchange, 2016, own calculations. All values are in US dollars.

The comparison of market value and RTS index performance in the Figure 7 shows noticeable correlation between two variables. From this perspective it is possible to state, that market value of NCSP is under significant influence of market performance and market risk. The relations between market risk and specific risk regarding market value of the company will be studied later.

4.6 Influence of equity and currency rate

For the purposes of mathematical modelling the linear regression model had been chosen. The general expression of the model is:

$$y_t = \gamma_1 + \gamma_2 x_{2t} + \gamma_3 x_{3t} + \cdots + \gamma_n x_{nt} + u_t \quad (14)$$

Using given data it is possible to calculate a correlation matrix for dependent and independent variables. The results of calculating Pearson correlation coefficients is given in the Table 11.

Table 11.Correlation matrix for linear regression model of market value as a function of balance sheet indicators

	y_t	x_{2t}	x_{3t}	x_{4t}	x_{5t}	x_{6t}	x_{7t}	x_{8t}
y_t	1,000	0,010	-0,032	0,559	0,045	-0,461	0,064	-0,688
x_{2t}	0,010	1,000	-0,260	0,664	0,807	0,090	0,758	-0,501
x_{3t}	-0,032	-0,260	1,000	0,139	-0,412	0,273	-0,433	-0,122
x_{4t}	0,559	0,664	0,139	1,000	0,404	-0,060	0,363	-0,921
x_{5t}	0,045	0,807	-0,412	0,404	1,000	-0,444	0,997	-0,250
x_{6t}	-0,461	0,090	0,273	-,060	-,444	1,000	-0,508	0,071
x_{7t}	0,064	0,758	-0,433	0,363	0,997	-0,508	1,000	-0,218
x_{8t}	-0,688	-0,501	-0,122	-0,921	-0,250	0,071	-0,218	1,000

Source: own calculations.

Calculated determination coefficient is shown in the Table 12.

Table 12.Summary for linear regression model of market value as a function of balance sheet indicators

	R	R square	Adjusted R square	Standard error for the estimate
Value	0,904	0,818	0,763	369526164,200

Source: own calculations.

The model shows accordingly high level of determination coefficient, R^2 = 0,818. It can serve as a proof that estimated model is significant, once it describes almost 82% of all market valuation dynamics for the given dataset.

Table 13.Calculated coefficients for linear regression model of market value as a function of balance sheet indicators

Variable	Unstandardized coefficient b_i	Standardized coefficient β_i	t - value	VIF
y_1	2632748917,000		1,938	
x_{3t}	-981,891	-,141	-1,186	1,552
x_{4t}	1520,588	,772	1,677	23,313
x_{5t}	-9804,117	-11,405	-1,865	4107,301
x_{6t}	340,845	,242	,508	24,996
x_{7t}	10446,538	11,117	1,781	4280,960
x_{8t}	-21811910,020	-,432	-1,429	10,058

Source: own calculations.

One of the variables, non-current assets, was excluded from the model estimation due to exact collinearity. All other variables, except current assets, demonstrates multicollinearity. At the same time, many independent variables of the estimated regression equation have low correlation to the dependent variable. Such factors as current assets, non-current liabilities and long-term debt have coefficient of correlation less then 0,1, and these factors can be considered as insignificant for the regression equation. After excluding variables, which have low correlation with dependent variable (or insignificant variables), the correlation matrix shows different picture, which is illustrated in the Table 14.

Table 14.Correlation matrix for linear regression model of market value as a function of balance sheet indicators after excluding insignificant variables

	y_t	x_{4t}	x_{6t}	x_{8t}
y_t	1,000	0,559	-0,461	-0,688
x_{4t}	0,559	1,000	-0,060	-0,921
x_{6t}	-0,461	-0,060	1,000	0,071
x_{8t}	-0,688	-0,921	0,071	1,000

Source: own calculations.

Table 15.Summary for linear regression model of market value as a function of balance sheet indicators

	R	R square	Adjusted R square	Standard error for the estimate
Value	0,823	0,678	0,636	458320974,900

Source: own calculations.

The model shows medium level of determination coefficient, $R^2 = 0,678$.

Table 16.Calculated coefficients for linear regression model of market value as a function of balance sheet indicators

Variable	Unstandardized coefficient b_i	Standardized coefficient β_i	t - value	VIF
y_1	5039751304,000		4,417	
x_{4t}	-936,659	-0,476	-1,565	6,596
x_{6t}	-577,871	-0,411	-3,464	1,005
x_{8t}	-55317677,060	-1,097	-3,606	6,606

Source: own calculations.

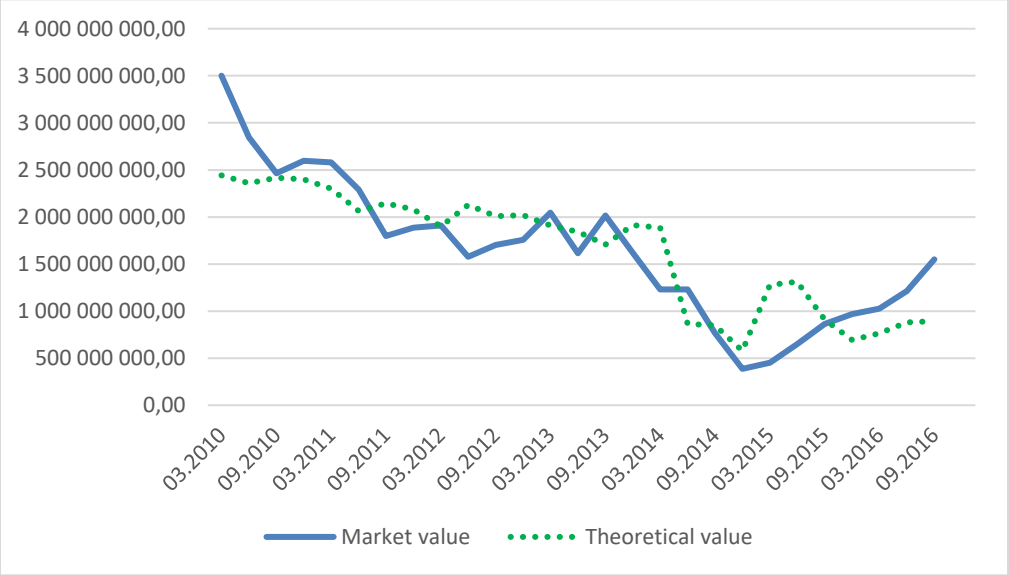
Calculations shows the presence of possible collinearity, because VIF value for total equity and foreign exchange rate is higher than 3 but less than 10.

After excluding insignificant variables, the regression model of market value as a function of balance sheet indicators is:

$$y_t = 5039751304{,}000 - 936{,}659x_{4t} - 577{,}871x_{6t} - 55317677{,}06x_{8t} \qquad (15)$$

Estimated model shows noticeable match with actual market capitalization, which can be seen on the Figure 8.

Figure 8.Estimated market capitalization model and actual market capitalization



Source: Moscow Exchange, 2016, own calculations.

To move from coefficients showing increase of market value in dollars, it is possible to calculate the elasticities of the indicators. Elasticities are commonly used to evaluate influence of 1% change in independent variable on dependent variable. Elasticity of variables for linear regression model calculates according:

$$\epsilon_i = b_i \frac{\overline{x_{it}}}{y_t} \qquad (16)$$

where ϵ_i - elasticity of independent variable x_{it}; b_i - regression coefficient of independent variable x_{it}; $\overline{x_{it}}$ - value of independent variable x_{it}; $\overline{y_{it}}$ - theoretical value of dependent variable;.

Calculated elasticities for regression variables are shown in the Table 17.

Table 17.Elasticities of independent variables

Case number	Quarter	Elasticity of total equity, ϵ_4 , %	Elasticity of current liabilities, ϵ_6 , %	Elasticity of foreign exchange rate RUB/USD, ϵ_8 , %
1	1Q2010	-35,55	-2,99	-66,51
2	2Q2010	-34,35	-5,13	-73,18
3	3Q2010	-37,43	-1,53	-69,61
4	4Q2010	-38,64	-1,12	-70,30
5	1Q2011	-45,50	-4,57	-68,32
6	2Q2011	-54,22	-13,38	-75,31
7	3Q2011	-40,10	-15,10	-82,20
8	4Q2011	-43,43	-14,65	-85,65
9	1Q2012	-64,91	-14,73	-85,31
10	2Q2012	-46,88	-6,37	-85,35
11	3Q2012	-61,08	-5,39	-85,09
12	4Q2012	-61,64	-5,52	-83,24
13	1Q2013	-65,48	-7,80	-90,03
14	2Q2013	-62,79	-14,45	-98,27
15	3Q2013	-73,31	-14,70	-104,97
16	4Q2013	-54,76	-16,53	-94,61
17	1Q2014	-49,44	-20,03	-104,63
18	2Q2014	-132,32	-95,40	-215,51
19	3Q2014	-102,61	-148,57	-256,56
20	4Q2014	-47,57	-277,91	-537,99
21	1Q2015	-26,30	-42,33	-253,03
22	2Q2015	-33,75	-33,01	-234,16
23	3Q2015	-33,04	-19,05	-402,43

24	4Q2015	-12,56	-23,71	-582,67
25	1Q2016	-40,48	-21,92	-488,74
26	2Q2016	-51,66	-12,54	-404,35
27	3Q2016	-48,34	-14,26	-391,16
Average	-	-51,78	-31,58	-192,19

Source: own calculations.

Calculated elasticities shows that changes in total equity, current liabilities, foreign exchange rate are the most influencing factor of market value. The noticeable fact is that elasticities of these variables is negative, therefore increase of total equity, gross profit and foreign exchange rate should decrease market value.

According to these results, it is possible to say that for the period of 1.01.2010-30.09.2016 market value of NCSP was under significant influence of total equity and current liabilities of the company. It shows the investor's fear of current liquidity of the company and the fact, that it can face difficulties to satisfy the demand of refunding liabilities. Investors were not focused on assets or sources of financing these assets, as these indicators have less correlation with market capitalization.

The most influencing factor is foreign exchange rate. This factor has the highest elasticity, the highest regression coefficient and the highest correlation with market value. The dependence is negative, thus increase of exchange rate should decrease market value of the company. Financial analysis of the enterprise showed that during that period company experienced foreign exchange risk, impairment of goodwill and impairment of restricted cash at failed bank. This results coincides with the estimated regression model. Non-current liabilities, financed by long-term debt in US dollars, was a source of foreign exchange risk. But foreign exchange risk realized in dramatic increase of current liabilities of the company, when credit agreement covenants came into power. The fact of having credit in US dollars with revenues in rubles can be evaluated as too much risk taken, or even a managerial failure.

At the same time, impairment of goodwill and impairment of restricted cash at failed bank can be definitely evaluated as managerial failure.

Impairment of goodwill sourced in high premium paid by the company for acquiring PTP, an asset on Baltic Sea. By accepting terms of the merger deal, management acquired risk of low cash flow from the acquired asset due to unfinished construction of railroad. This risk is completely out of NCSP management control, and cannot be hedged or eliminated.

Impairment of restricted cash at failed bank has the same source as impairment of goodwill. According to the fact, that failured Vneshprombank was ranked between 200 and 300 place among Russian banking system, management of the company decided to invest free cash to deposits at this bank, acquiring risk of bankruptcy of the bank. Central Bank of Russia has been recalling from 50 to 150 banking licences each year from 2013, mostly small regional banks with problems with reserves, and that fact makes investment in small bank a very risky decision. It was possible to reduce the risk of bank failure with choosing more stable bank, but management decided to proceed with risky but potentially profitable investment. Eventually, it turned out to be the key decision affected company financial performance for the whole year of 2015.

It is clear, that proper investment risk management is one of the crucial parts of corporate governance, which NCSP has to improve. The results of analysis show that current risk assessment system is not able to make decisions, which would positively influence market valuation of the company, minimize risks and support sound financial decisions.

4.7 Influence of revenue and net profit

Modelling of revenue and net profit has been done by using linear regression model. The general expression of the model is:

$$y_t = \gamma_1 + \gamma_2 x_{2t} + \gamma_3 x_{3t} + \cdots + \gamma_n x_{nt} + u_t \quad (17)$$

Using given data it is possible to calculate a correlation matrix for dependent and independent variables. The results of calculating Pearson correlation coefficients is given in the Table 18.

Table 18.Correlation matrix for linear regression model of market value as a function of P&L statement indicators

	y_t	x_{14t}	x_{15t}	x_{16t}	x_{17t}	x_{18t}	x_{19t}
y_t	1,000	-0,306	0,200	-0,676	-0,051	0,332	0,323
x_{14t}	,010	1,000	-0,260	0,664	0,807	0,090	0,758
x_{15t}	-0,032	-0,260	1,000	0,139	-0,412	0,273	-0,433
x_{16t}	0,559	0,664	0,139	1,000	0,404	-0,060	0,363
x_{17t}	0,045	0,807	-0,412	0,404	1,000	-0,444	0,997
x_{18t}	-0,461	0,090	0,273	-0,060	-0,444	1,000	-0,508
x_{19t}	0,064	0,758	-0,433	0,363	0,997	-0,508	1,000

Source: own calculations.

Calculated determination coefficient is shown in the Table 19.

Table 19.Summary for linear regression model of market value as a function of P&L statement indicators

	R	R square	Adjusted R square	Standard error for the estimate
Value	0,774	0,600	0,504	534659009,100

Source: own calculations.

Estimated regression model shows relatively medium level of significance, because determination coefficient is equal to 0,6. It means, that 60% of changes in dependent variable can be described by the model.

Table 20.Calculated coefficients for linear regression model of market value as a function of P&L statement indicators

Variable	Unstandardized coefficient b_i	Standardized coefficient β_i	t - value	VIF
y_1	4076045734,000		5,743	
x_{15t}	4986,420	0,183	1,291	1,056
x_{16t}	-20001,419	-0,647	-4,526	1,073
x_{17t}	-1083,872	-0,113	-0,588	1,941
x_{18t}	-2557,090	-0,633	-0,244	352,311
x_{19t}	4966,299	1,021	0,386	366,143

Source: own calculations.

The variable expressing revenue has been excluded from the equation, because it shows exact collinearity. This fact shows complete elastic influence of revenue on market value. At the same time, this variable should excluded from regression model in order to avoid incorrect interpretation of other variables.

Collinearity diagnostics shows, that earnings before interest and taxes have multicollinearity. It is proved by VIF parameter of this indicator, which is more than 10. In order to estimate a significant regression equation it is possible to respecify the regression equation and exclude variables with multicollinearity. At the same time, aim of research requires presence of net profit indicator, and this variable cannot be excluded.

Using given data it is possible to build another regression model, excluding inappropriate variable representing EBIT. The results of calculating Pearson correlation coefficients is given in the Table 21.

Table 21.Correlation matrix for linear regression model of market value as a function of P&L statement indicators

	y_t	x_{14t}	x_{15t}	x_{16t}	x_{17t}	x_{19t}
y_t	1,000	-0,306	0,200	-0,676	-0,051	0,323
x_{14t}	-0,306	1,000	0,733	0,635	0,134	-0,033
x_{15t}	0,200	0,733	1,000	-0,060	-0,023	-0,045
x_{16t}	-0,676	0,635	-0,060	1,000	0,222	0,003
x_{17t}	-0,051	0,134	-0,023	0,222	1,000	0,492
x_{19t}	0,323	-0,033	-0,045	0,003	0,492	1,000

Source: own calculations.

Calculated determination coefficient is shown in the Table 22.

Table 22.Summary for linear regression model of market value as a function of P&L statement indicators

	R	R square	Adjusted R square	Standard error of the estimate
Value	0,774	0,599	0,526	523108223,000

Source: own calculations.

Estimated regression model shows the same level of significance, than the previous one, because determination coefficient is equal to 0,599.

Table 23.Calculated coefficients for linear regression model of market value as a function of P&L statement indicators

Variable	Unstandardized coefficient b_i	Standardized coefficient β_i	t - value	VIF
y_1	4059840752,000		5,873	
x_{15t}	4780,694	0,176	1,296	1,006
x_{16t}	-19991,707	-0,647	-4,624	1,073
x_{17t}	-848,174	-0,088	-0,551	1,410
x_{19t}	1830,972	0,376	2,403	1,343

Source: own calculations.

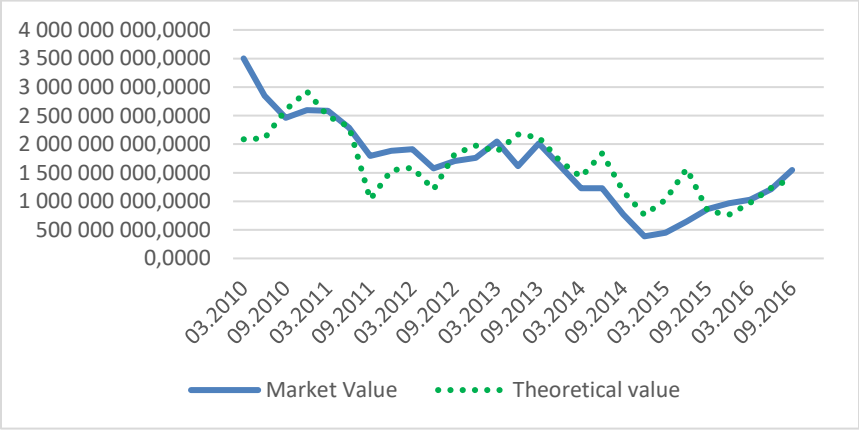
Estimated regression shows low multicollinearity, as all VIF values are lower than 3.

Regression model of market value as a function of P&L statement indicators is:

$$y_t = 4059840752 + 4780{,}694x_{15t} - 19991{,}707x_{16t} - 848{,}174x_{17t} + \\ +1830{,}972x_{19t} \qquad (18)$$

Estimated model shows, that revenue has very small influence on the market value of the company. It can be explained by the fact, that NCSP business is constrained to grow revenues, because acquiring new customers and developing cash flows from current customers are influenced by country's and world economy performance.

Figure 9.Estimated market capitalization model and actual market capitalization



Source: Moscow Exchange, 2016, own calculations. All values are in US dollars.

To move from coefficients showing increase of market value in dollars, it is possible to calculate the elasticities of the indicators. Elasticities are commonly used to evaluate influence of 1% change in independent variable on dependent variable. Elasticity of variables for linear regression model calculates according:

$$\epsilon_i = b_i \frac{\overline{x_{it}}}{y_t} \qquad (19)$$

where ϵ_i - elasticity of independent variable x_{it}; b_i - regression coefficient of independent variable x_{it}; $\overline{x_{it}}$ - value of independent variable x_{it}; $\overline{y_{it}}$ - theoretical value of dependent variable;.

Calculated elasticities for regression variables are shown in the Table 24.

Table 24.Elasticities of independent variables

Case number	Quarter	Elasticity of cost, ϵ_{15}, %	Elasticity of gross profit, ϵ_{16}, %	Elasticity of operating profit, ϵ_{17}, %	Elasticity of net profit, ϵ_{19}, %
1	1Q2010	13,59	-111,54	-4,25	7,38
2	2Q2010	13,38	-108,11	-4,37	6,23
3	3Q2010	11,04	-69,94	-2,61	5,45
4	4Q2010	10,43	-49,32	-1,56	1,59
5	1Q2011	22,54	-93,01	-3,27	10,57
6	2Q2011	28,52	-107,05	-3,79	6,26
7	3Q2011	58,54	-313,34	-12,09	-26,75
8	4Q2011	35,46	-198,82	-7,11	6,96
9	1Q2012	32,60	-209,71	-7,92	29,18
10	2Q2012	44,66	-255,41	-9,32	-17,00
11	3Q2012	25,82	-160,03	-5,99	17,91
12	4Q2012	28,19	-133,23	-0,39	-0,34
13	1Q2013	27,07	-142,17	-5,21	3,69
14	2Q2013	24,89	-106,08	-3,66	-2,02
15	3Q2013	22,40	-117,41	-4,30	7,61
16	4Q2013	29,77	-153,50	7,44	-22,22
17	1Q2014	35,80	-208,66	-7,92	-4,14
18	2Q2014	28,22	-160,10	-5,99	16,94
19	3Q2014	35,73	-251,71	-9,53	-19,91

20	4Q2014	43,74	-365,15	-9,69	-102,15
21	1Q2015	25,63	-320,25	-12,87	12,64
22	2Q2015	20,47	-192,72	-7,63	20,94
23	3Q2015	32,51	-386,03	-15,28	-20,70
24	4Q2015	36,84	-427,25	17,29	-57,41
25	1Q2016	21,42	-364,99	-13,19	39,55
26	2Q2016	22,38	-263,35	-10,23	22,78
27	3Q2016	18,97	-216,73	-8,50	16,28
Average	-	27,80	-203,17	-5,63	-1,51

Source: own calculations.

Calculated elasticities shows that changes in gross profit is the most influencing factor of market value. The noticeable fact is that elasticity of gross profit is negative, therefore increase of gross profit should decrease market value. Elasticity of cost is positive, which can show that market value is under significant influence of costs of enterprise. It shows an important source of increasing market value and should be taken into consideration by the management of the company. Other variables, like operating or net profit have relatively low level of influence.

Elasticity of net profit is relatively low, and it shows that changes of 1% in net profit should result in 0,0151% change in market value.

4.8 Influence of market risk and market return

Capital assets pricing model (CAPM) is one of the widespread instruments to evaluate the behavior and dependencies between return on investments to particular financial instrument and expected return on investments to market portfolio. This model assumes a perfect market with no transaction costs and all players chasing profits, behaving efficiently. Notwithstanding the unreal character of the model, it can help to assess the borders inside which market players expect return and risk of particular financial instrument.

In relation to market value, it is crucial to determine the influence of current market risk (standard deviation), market return, risk of NCSP share, return on NCSP share and beta-coefficient of NCSP. It is important to identify the relations between these indicators and market value, because portfolio managers, investors and investment consultants are monitoring these indicators on a periodic basis. Investment decisions are based on these indicators; nevertheless, it is crucial to evaluate the actual level of influence of these indicators on investment decision.

For the purposes of mathematical modelling the linear regression model had been chosen. The general expression of the model is:

$$y_t = \gamma_1 + \gamma_2 x_{2t} + \gamma_3 x_{3t} + \cdots + \gamma_n x_{nt} + u_t \quad (20)$$

Table 25.Correlation matrix for linear regression model of market value as a function of CAPM model indicators

	y_t	x_{14t}	x_{15t}	x_{16t}	x_{17t}	x_{19t}
y_t	1,000	-0,207	-0,893	0,220	-0,757	0,275
x_{14t}	-0,207	1,000	0,485	0,272	0,231	-0,026
x_{15t}	-0,893	0,485	1,000	-0,036	0,723	-0,189
x_{16t}	0,220	0,272	-0,036	1,000	-0,114	0,317
x_{17t}	-0,757	0,231	0,723	-0,114	1,000	-0,288
x_{19t}	0,275	-0,026	-0,189	0,317	-0,288	1,000

Source: own calculations.

Estimation of Pearson correlation coefficients shows, that there is a tight connection between risk of NCSP as a financial instrument, and overall risk of market (or market deviation).

Two independent variables with highest level of influence are NCSP specific risk and market risk, both with negative values of correlation coefficient.

Calculated determination coefficient is shown in the Table 26.

Table 26.Summary for linear regression model of market value as a function of CAPM model indicators

	R	R square	Adjusted R square	Standard error of the estimate
Value	0,943	0,889	0,862	281881395,500

Source: own calculations.

The model shows accordingly high level of determination coefficient, $R^2 = 0,889$. It can serve as a proof that estimated model is significant, once it describes almost 89% of all market valuation dynamics for the given set of data.

Table 27.Calculated coefficients for linear regression model of market value as a function of CAPM model indicators

Variable	Unstandardized coefficient b_i	Standardized coefficient β_i	t - value
y_1	3281782736,000		17,263
x_{9t}	870823853,000	0,234	2,609
x_{10t}	-2554622445,000	-0,891	-7,415
x_{11t}	501471533,300	-0,094	1,160
x_{12t}	-20833526690,000	-0,144	-1,311
x_{13t}	103206994,500	0,042	0,523

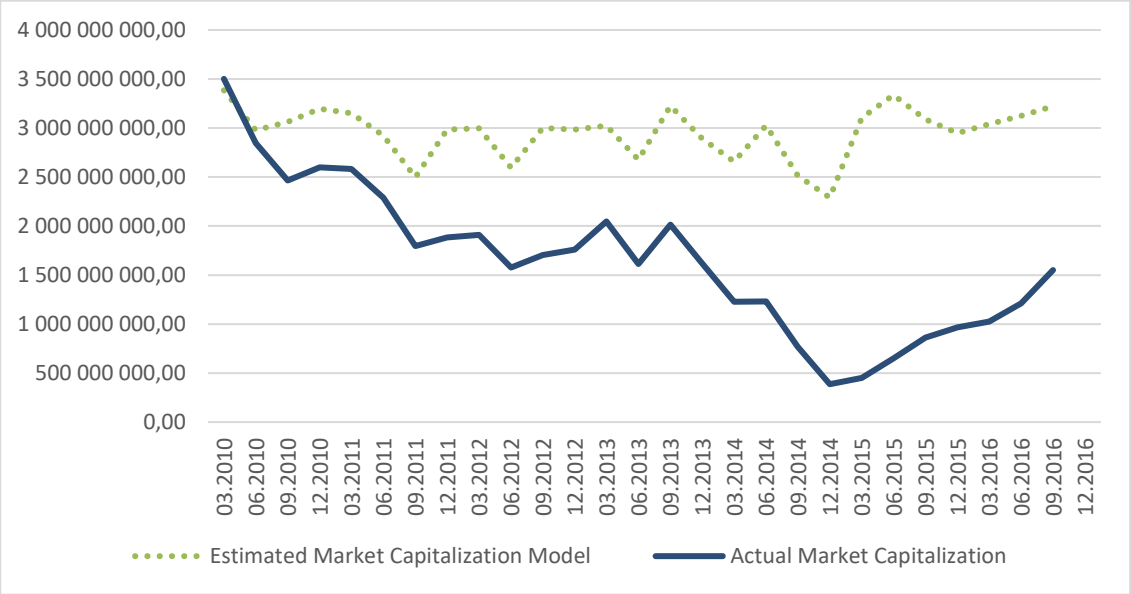
Source: own calculations.

After applying calculated coefficients the regression model is:

$$y_t = 3281782736 + 870823853x_{8t} - 2554622445x_{9t} + 501471533{,}3x_{10t} - \\ -20833526690x_{11t} + 103206994{,}5x_{12t} \qquad (21)$$

Estimated model shows noticeable match with actual market capitalization, which can be seen on the Figure 10.

Figure 10.Estimated market capitalization model and actual market capitalization



Source: Moscow Exchange, 2016, own calculations. All values are in US dollars.

According to the coefficients of regression equation, it is possible to say that the strongest influencing factor on market value of NCSP is market risk, which value is several times higher than others are. At the same time, this coefficient is negative, and increasing market risk (or, in other words, deviation) results in decrease market value of NCSP. The second strongest factor, which is NCSP specific risk, has the influence of almost ten times lower, with negative value also.

Estimated regression equation shows, that for a given period of 1.01.2010-30.09.2016, market value of NCSP was under more tough influence from market risk than from firm specific risk. It correlates with the fact that NCSP shares are not in the group of "blue chips" (companies with high liquidity and capitalization), thereby many investors keep them in the portfolio for the reasons of diversification. From this perspective, NCSP shares are more likely to be sold short when market risk increases, and not likely to be bought long when market risk decreases. This type of behavior is quite common for low capitalization shares, as they are connected with low liquidity and relatively higher spread of buy and sell price.

5 Results and Discussion

Estimated regression equations show several important outcomes. Firstly, it shows, that for a given period of time market value of the company was determined by the value of equity (which is plausible), current liabilities (which is not plausible) and foreign exchange rate. Coefficient for total equity is slightly higher, that for current liabilities, and is positive. It indicates that increasing equity would have more significant influence on market capitalization than decreasing current liability.

From this point of view it is quite clear that additional injections of capital can be considered as market value growth factor. Key shareholders, which are Russian state and Russian state-owned corporation, should consider providing the company with additional equity in order to increase market value.

Management should consider changes in investment risk management policies. It is quite clear that the decision of acquiring PTP in 2011 was one of the riskiest, as NCSP paid a significant premium to the book value of the enterprise with the assumption, that the acquired asset would be producing significantly higher cash flow than it than it actually did.

From strategic point of view, acquiring of PTP was a right decision, since it allowed to lower the cost of running the enterprise, as well as it supports the strategy of geographical expansion of operations. At the same time, from capital budgeting point of view the inaccuracies in evaluating investments decisions in future can be lowered by applying less optimistic approach to expected cash flows or applying higher discount rate. Both solutions are valid.

The specific of NCSP business does not allow the company to increase revenues by simply acquiring new clients, as it is closely connected with the national economy and global markets. Since the estimated regression model shows that the market value of this particular enterprise is mostly dependent on gross profit it is possible to consider acquiring other seaport in the region. As market value of this particular enterprise is mostly dependent on gross profit, it is possible for the company to consider acquiring of another seaport in the region. The key points of a sound decision here are a proper object of acquisition, reasonable price and structure of financing the deal. Financing of previous acquisition deal with PTP was done in foreign

currency, while NCSP revenues and projected revenues of PTP were in rubles. It represented a significant foreign risk to NCSP and resulted in sharp decline of equity value during depreciation of ruble in 2014.

The influence of foreign exchange risk matches previous research of Russian financial market made by other authors (e.g. Nalivayskiy). Hedging risk by purchasing or selling currency put option may be one of the possibilities.

Two strategies of hedging can be proposed on the basis of expectations of ruble exchange rate. First strategy assumes that ruble will depreciate to the expiration date of an option. In this case the company may consider buying put option on ruble against US dollar. In the opposite case (appreciation of ruble) the company would lose only the premium on the option. Second strategy assumes that the ruble is expected to appreciate. In this case the company may consider selling put option on ruble against US dollar. In the opposite case (depreciation of ruble) the company would lose only the premium on the option. In both strategies, if the change of spot rate of a currency would exceed expected, the company would receive income. Options provide users with limited risk, but unlimited potential income.

Estimated model of market value as a function of specific and market risk shows, that market value of the enterprise is mostly influenced by market risk. Market risk is also called undiversifiable risk, as it applies to every financial asset on particular market. At the same time, specific risk of NCSP shares, or diversifiable risk, does not significantly influence market value of the company.

The revealed influence of market risk coincides with previous research of factors which are influencing market value of companies on Russian stock market on the example of oil and gas companies (so-called blue chips). These results shows, that from this point of view NCSP as an asset is more likely to follow the market.

6 Conclusion

Taking into consideration the conditions of economic sanctions and capital movement restrictions, the problems of investment decisions arose as one of the central in Russian economics and finance. At the same time every investment decision is based on evaluation of cash flows generated by assets, and most of the times evaluation considers current capitalization and equity as determinative factors in decision making. It is possible to see that capitalization and equity is tightly connected with different sides of every enterprise: operational and strategic management, investments, finance and economic growth. All of this surely proves the importance of studying problems of capitalization and equity.

Discussions of problems of capitalization and equity of transport enterprises in Russia always refers to the most noticeable and biggest public enterprise in sea transport industry, the Novorossiysk Commercial Sea Port (NCSP), which is also known as NCSP Group due to the fact, that company owns several enterprises at different geographical locations.

Novorossiysk Commercial Sea Port is one of the examples of public enterprise in the industry of sea transport, stevedoring and port infrastructure. At the same time, it is one of the most remarkable companies of the South Russia. Main line of the business of the company is stevedoring. The Group is a leading stevedoring company in Russia, with the 3rd largest freight turnover place among European seaports. Only seaports of Rotterdam and Antwerp have higher freight turnover results in 2015 than NCSP. NCSP Group includes eight stevedore companies with various specialization, operating among Black Sea and Baltic regions. Group includes Novorossiysk and Primorsk, the two largest ports by freight turnover in Russia, taking leading positions on the stevedore services market.

During the period of 2010-2016 the financial state of the company was quite unstable, with growing volatility, which implicates risk connected with the shares of the company. Series of consecutive negative events moved main financial indicators up and down, creating uncertainty about future incomes. It is important to mention, that during that period operational results of the enterprise including cargo turnover was steadily growing. Regarding this, it is possible to say that market performance was under significant influence of financial management of the company and was not influenced significantly by operational performance.

After detailed research of aspects connected with the company and constructing mathematical models it is possible to answer research questions.

1. What are the quantitative factors of NCSP market capitalization with level of impact more than 0,6?

According to calculated correlation coefficients, company specific factors (current liabilities, gross profit) and external factors (foreign exchange rate, undiversifiable market risk) were the main influencing factors of NCSP market value in the given period.

2. Why some factors of NCSP market capitalization are more significant than others?

Financial analysis shows, that the performance of the company was unstable and volatile, and perceptions of risk connected with the company influenced market value.

3. How financial condition of NCSP influences market capitalization?

Financial analysis shows, that net profit financial condition of the company (e.g. net profit) had weak direct influence on the market value.

4. What is the level and direction of impact of increasing or decreasing revenue on NCSP market capitalization?

Revenue has a little influence on market value of NCSP for the given time period.

5. What is the level and direction of impact of increasing or decreasing net profit on NCSP market capitalization?

Net profit (and therefore dividends) has a little influence on market value of NCSP for the given period. Traditional Gordon growth model does not come up with the valuation close to the market value.

6. What is the level and direction of impact of increasing or decreasing equity on NCSP market capitalization?

Equity has an unsurprisingly direct and strong impact on market value.

7. What is the level and direction of impact of increasing or decreasing currency rate on NCSP market capitalization?

Currency rate, or foreign exchange rate, is one of the most influencing external factors, among with undiversifiable market risk.

Based on the results, it is possible to formulate recommendations on market value growth for the enterprise. Management should consider changes in investment risk management policies and capital budgeting process. It is quite clear after the research, that the decision of acquiring PTP in 2011 made NCSP to pay a significant premium to the book value of the enterprise with the expectation, that the acquired asset would be producing significantly higher cash flow than before the acquisition. It was expected that construction of railway to transfer oil through PTP would be finished in 2012, but due to reasons which are out of the company's control the construction had been delayed until 2017.

From capital budgeting point of view the inaccuracies in evaluating investments decisions in future can be lowered by applying less optimistic approach to expected cash flows or applying higher discount rate.

As there is a direct connection of equity to market value, additional injection of capital may be considered as a factor of market value growth.

Company should also adjust its foreign exchange risk policy. During given period of time the company was under significant influence of fluctuating currency exchange rates due to high level of debt nominated in US dollars. According to the fact, that NCSP is not a multinational enterprise and has operations only in rubles, it would be better to hedge foreign exchange risk by purchasing or selling put currency options according to the chosen strategy.

The recommendations proposed on the basis of current research shows, that market value of transport enterprise operating on Russian market (e.g. seaport of Novorossiysk) is not directly connected to its operational results, but instead it is under a huge influence of external factors (market risk, foreign exchange rate). This fact not only reflects the essence of the business, but also helps to understand the country's current economy and financial market.

7 References

OHLSON, James A. and JOHANNESSON, Erik (2015), *Equity Value as a Function of (Eps1, Eps2, Dps1, Bvps, Beta): Concepts and Realities* (June 14, 2015). SSRN, Available from: http://ssrn.com/abstract=2590487

DEMIDENKO, T.I. (2010), *Systematic approach for determination of factors influencing capitalization of Russian corporations*, №3, 2010, Financial Researches, pp.69-75

NALIVAISKIY, V. Yu., DEMIDENKO, T. I. (2010a), *Rating estimation of the Russian corporation's capitalization factors importance*, №32, 2010, Finance and Credit, pp.28-33

FERNANDEZ, P. (2001), *EVA, Economic profit and Cash value added do NOT measure shareholder value creation*, (June 5, 2001) SSRN, Available from: http://ssrn.com/abstract=270799

FERNANDEZ, P. (2015), *Three Residual Income Valuation Methods and Discounted Cash Flow Valuation*, (November 17, 2015) SSRN, Available from: http://ssrn.com/abstract=296945

NALIVAISKIY, V. Yu., DEMIDENKO, T. I. (2010b) *Political factors' influence on market capitalization of Russian biggest companies*, №21, 2010, Finance and Credit, pp.2-6

BENDER Jennifer, BRIAND Remy, MELAS Dimitris, SUBRAMANIAN Raman Aylur (2013), *Foundations of Factor Investing*, October, 2013, MSCI Research Insight, SSRN, Available from: http://ssrn.com/abstract=2543990

INVESTOPEDIA, (2016a) *Equity Definition*, Available from: http://www.investopedia.com/terms/e/equity.asp#ixzz4Jxb25qsf

INVESTOPEDIA, (2016b) *Shareholders' Equity Definition* Available from: http://www.investopedia.com/terms/s/shareholdersequity.asp#ixzz4JxjqjxS1

SCHERBAKOV, V.A., SCHERBAKOVA, N.A., (2006), *Evaluation of enterprise (business)*, Omega-L, 2006, ISBN 5-365-00213-X

ABRAMOV, A.E., (2003), *Market capitalization – definition, indicators and spheres of application*, №3(4), 2003, Aktsionernoye Obschestvo, pp. 51-55

ALEKSEEV, D.A. (2011) *Mechanisms of companies' capitalization*, Irkutsk, BSUEL, 2011, ISBN 978-5-7253-2337-5

BABURINA, O.N. (2015) *Analysis of operational and financial results and development trends of NMTP Group under conditions of anti-Russian sanctions*, Actual Problems of Humanitarian and Life Sciences, 2015, №11-3, pp.20-27

NCSP, (2015), *Annual Report 2015*, Available from: http://nmtp.info/upload/iblock/eab/ncsp_ar_2015_rus.pdf

NCSP, (2014), *Annual Report 2014*, Available from: http://nmtp.info/upload/iblock/98f/nmtp_annual_report_rus_site.pdf

SCIENCE DAILY, (2016), *Mathematical model*, Available from: https://www.sciencedaily.com/terms/mathematical_model.htm

SYKES, Alan O., (2016), *An Introduction to Regression Analysis*, Available from: http://www.law.uchicago.edu/files/files/20.Sykes_.Regression.pdf

BROOKS, Chris, (2014), *Introductory Econometrics for Finance*, Cambridge University Press, 2014, ISBN 978-1-1076-6145-5.

CZERNY, Achim, HÖFFLER, Felix, MUN, Se-il (2013), *Port Competition and Welfare Effect of Strategic Privatization*, 2013-13, EWI Working Papers, Energiewirtschaftliches Institut an der Universitaet zu Koeln (EWI).

WELCH, Ivo, (2011), *Corporate Finance, 2nd Edition to "Corporate Finance: Introduction"*, 2011, ISBN 978-09840049-5-9.

CENTRAL BANK OF RUSSIAN FEDERATION, (2016), *Information*, Available from: http://cbr.ru/press/pr.aspx?file=24032017_132958keyrate2017-03-24T13_25_44.htm

MOSCOW EXCHANGE, (2016), *Moscow Exchange*, Available from: http://moex.com/en

8 Appendix 1

System of factors influencing capitalization

Factor's fundamentality degree	Factor's measurability	Level of origin	Factors
Fundamental	Quantitative	Micro (on the level of a company)	1. Financial and economic condition of business
			2. Corporate structure
			3. Competition
			4. Production potential
		Mezo (on the level of an industry)	1. Change of the industry's part in country GDP
			2. Industry need for investments
			3. Government support of the industry
		Macro (on the level of a country)	1. Economic
			2. Infrastructure
			3. Social
	Qualitative	Micro (on the level of a company)	1. Production potential
			2. Competition
			3. Corporate structure
			4. Organizational structure
		Mezo (on the level of an industry)	1. Industry's changes in competition
			2. Season fluctuations
			3. Industry's orientation on consumer goods or means of production
			4. Changes in resources supply for the industry (production, labor etc)
		Macro (on the level of a country)	1. Political
			2. Legal
			3. Infrastructural
			4. Social-cultural and moral-ethic
		External (in relation to a country)	General political, legal, social, cultural situation in the world
Non-fundamental		Informational (news)	
		Behavioral (emotionally-psychological)	

9 List of Tables

10 List of Figures