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Analysis of door-to-door logistics in the steel industry. The partnership's analysis of «Coutinho & Ferrostaal» and «Astra Shipping Agency»

by

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Abstract

It is hard to imagine life without automobiles, planes, trains, buildings etc. However, all of the mentioned things can not be created without steel as a matter. Steel products are everywhere and can be met almost in every industry. But the steel products should be transported because they are mainly produced in the minefields, which are very often far away from customers. And that is why the logistics is extremely important component of the steel industry.

The present thesis helps to analyze the logistics of all variety of steel products and determine how the current logistics model in real-life partnership can be improved. The importance of logistics optimization is stipulated by the global market, which damaged significantly due to the world financial crisis. Firms have started to think in terms of cost minimization instead of profit maximization and it is the place, where logistics as an irreplaceable part in many types of businesses is able to play the most important role.

The Russian market, which has been chosen as the final customer of the steel products, delivered by studied company, can be considered as fairly complicated because of high concentration of the local rivals as well as Russian specificity and set of mind. Under the latter, the author means the insufficient level of transparency.

The studied partnership is a good example of effective partnership between two complementary markets – steel industry and third-party logistics. In such a manner, the analysis of good practice can be beneficial to both parties. First of all, it is possible that vertically integrated companies will start to outsource logistics function because it might be more advantageous and competitive in conditions of modern trade market. Secondly, the logistics companies can catch the idea of how to survive in severe conditions, which are nowadays dictated by the world economy.
Conclusions, presented in the end of the paper, are quite unhacked and have been received by the analysis of studied partnership. This is stipulated by the fact the author together with supervisors have specified the research as qualitative with many in-depth interviews. The latter made the thesis more realistic and fill it with the voice of business.

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List of Abbreviations

C&F – Coutinho & Ferrostaal GmbH
ASA – Astra Shipping Agency
WTO – World Trade Organization
FOB – Free on board
CIF – cost, insurance, freight
SME – small and medium enterprises
BOF – basic oxygen furnace
EAF – electric arc furnace
EU – European Union
CIS – The Commonwealth of Independent States
COB – Container-on-barge
LLC – Limited Liability Company
PR – Public Relations

1 Introduction

For the last several years the world economy has been changing a lot. The latter has a cyclic nature and each market player has to keep it in mind. 2008 world financial crisis has negatively influenced many companies, customers, authorities and countries. It is known that every market from car manufacturers to construction industry has sustained losses. In order to stay the course, firms have to adapt to the current situation by changing their strategy, re-engineering of business processes, dismissal of employees etc. Eventually nowadays the optimization of the business in terms of cost minimization becomes much more important for many companies than expansion or other aggressive strategies. Enterprises in the majority of physical industries would better save and maintain than spend their income on further development. This statement is totally suitable for the steel industry as well as for the logistics.

1.1 Rationale for the research

The steel industry has always been one of the leading in the world market. At the present time, the steel market can be described as oligopoly with several major players (Bhandari et al., 2009). For any new and small company it is almost impossible to enter the market because of high barriers to entry. The strong competition, similar production technologies between firms and severe market's conditions due to the present financial crisis force business to search qualitative competitive advantage out of the bounds of high-quality products.

Having an experience in shipping company and studying Maritime Economics & Logistics in Erasmus University Rotterdam, the author of this paper has decided to investigate how logistics-oriented companies adjust to new tough economic conditions and what kind of benefits they are able to receive on the assumption of current situation of the global crisis. Being involved in operation processes of Onego Shipping & Chartering b.v., located in Rotterdam, the Netherlands, the author has noticed that firm has been trying to maintain already existing partnerships to be able to predict the volume of a freight. The company, whose business model used to be an effective to operate on the spot chartering market and suitable during the market boom from 2002 to 2007, has smoothly changed the strategy to create a bundle of signed contracts up to 2017 year (Y. Leontiev 2012, personal communication, 15 January).

Combining the above-mentioned knowledge of examined markets, the author has decided to follow their cooperation in the author's native country. Taking into consideration the Russian market of steel, which is quite difficult to enter because of big concentration of top world biggest steel producers in the industry such as local JSC «Severstal», «EVRAZ plc», JSC «Mechel», JSC «NLMK», JSC «Metalloinvest», one of the main opportunity to penetrate the foreign market besides the high quality of products, in the author's point of view, is to demonstrate the feasible costs of logistics.

Moreover, it is the author's view, that this study can be a good anti-crisis guidance for the small and medium enterprises (SME), such as a big variety of logistics companies, which face the difficulties in the current market conditions.

1.2 Aim and objectives of the study

To sum up, the author of the thesis has laid down an aim to analyze the door-to-door logistics in the steel industry. In support of the mentioned aim, the author has formulated the core question of the thesis – how to optimize the door-to-door logistics in the steel industry?

In order to prepare the full analysis, several research objectives have to be met:

- The analysis of the seaborne logistics of steel raw materials as well as final / semi-final steel products;
- To examine the current logistics schemes, which are nowadays preferable inside the Russian market;
- To determine the key elements of effective logistics used by studied partnership;
- To analyze the port of Saint-Petersburg as an essential component of the delivery of steel products to Russia;
- To determine the efficiency of local warehouse, located in the suburb of Saint-Petersburg

1.3 Structure of the study

Structurally the paper is divided into 3 main parts. The first one is the superficial analysis of the global steel market. The latter has been chosen on purpose. Almost none of world industries can survive without steel products. Steel is one of the most widespread details in the world. It is presented everywhere – in construction industry to build the house, business center etc.; in shipping industry – to build a new containership or bulk carrier; in automotive sector – to create the new sharp design of the car; in appliances – to make a new washing machine or water-heater. In such a manner, the first chapter in general argues the importance of the topic as well as the research question. The steel products can not be produced everywhere and their location mainly depends on minefields (for instance, Russian vertically integrated steel giants have the production plants in Siberia and Ural). Hence, being as a complementary market for many other industries, the steel manufacturers as well as the steel traders, have to think in terms of transportation of raw materials or finished goods to the place, where the final customer wants them to receive. Indeed, the word «transportation» is highly complex and includes the whole package of services in order to maintain world global industries, which demand the regular replenishment of steel products in their warehouses.

The logistics' component should not be underestimated. In addition, the coming exhibition called «MetallTransLogistik 2012» will for the first time ever pay a lot of attention to logistics component as the stable competitive advantage: «Due to the fact that mining and metallurgical complex accounts for a considerable part of international and domestic cargo transportations while the logistics costs reach depending on the industry 10 to 40%, in their effort to find more efficient solutions for costs cutting, management of companies show keen interest in the subject»

(JSC "METAL-EXPO" , 2012). This statement shows the trend of growing important of logistics in the steel industry and that is why the author, who is interested in both logistics and steel markets, has chosen the above-mentioned topic as the research subject.

In such a manner, the first chapter is the characteristics of world steel industry.

As for the second chapter, the author will specify the research and constrict the purpose of second chapter to Russian steel industry analysis as well as the analysis of main logistics schemes, used by vertically integrated local manufacturers such as JSC «Evraz», JSC «Severstal» or JSC «NLMK». All companies are in the list of top world biggest steel producers and the latter makes Russian market highly competitive and hence it makes the current research more valuable. As the result, the focused market will be analyzed with its opportunities and threats.

Thirdly, the author will switch the interest to the partnership of Coutinho & Ferrostaal and Astra Shipping Agency, which is the practical component of the study. The results gained in this part will be spread on the whole paper and will be presented in the conclusions.

1.4 Assumptions

The studied partnership is aimed to elicit the structure of the logistics scheme, which can be used by the company in order to compete on foreign markets. Indeed, before making the analysis of the whole logistics process from manufacturer to final consumer, some assumptions have to be done.

1.4.1 Research methodology

To start with, it should be mentioned, that very often optimization assumes quantitative research as well as the presence of different models. For instance, one of such model is cost-minimization problem, which has been studied during Supply Chain Management course in Center for Maritime Economics and Logistics (Chopra & Meindl, 2010).

In such a manner, the first assumption as well as one of the main peculiarities of the research, that the latter is based on the qualitative research, which implies that unstructured data analysis will be done (Family Health International, 2012). Qualitative research plays an important role in the international research. It is able to provide the author of the research with understanding of the key problem and encourage the author to develop the solutions. By means of qualitative research it becomes possible to compare internal and external markets, which is an important in case of this research (Malhotra, 2008).

Before making any deep research in the studied field, the author was advised to base the thesis on the partnership analysis of the steel trader and logistics company. The main argument regarding the core methodology was that the ideal situation will never occur in the real life and that much more beneficial is to «hear the voice of the business», as it was said during first meeting with Mr. Snatkin, regional director of «Coutinho & Ferrostaal» (W. Snatkin 2012, personal communication, 16 July). The contact details of above-mentioned respondents are listed in Appendix 1.

As a result, the core emphasis in the research part has been done on the series of in-depth interviews with the representatives of both steel and logistics industries. In-depth interview is the personal unstructured direct interview, where the respondent is asked by interviewer in order to determine his core incentives, emotions and attitudes and persuasion in the particular field of expertise (Malhotra, 2008). The list of questions for the respondents is presented in appendix 2.

Among the representatives were people from both steel and logistics industries. Mr. Waleri Snatkin, the regional director of Coutinho & Ferrostaal (Hamburg, Germany) as well as an internal supervisor of this thesis, was responsible for the steel industries' side. Mr. Leonid Rozhdestvenskiy, the managing director of Astra Shipping Agency (Saint-Petersburg, Russia) has helped the author with logistics component of steel delivery on the Russian market. In addition, the phone interview with Mr. Alexey Semin, chartering director of Mainline Shipping Company (Athens, Greece) as well as the interview with Mr. Yuri Leontiev, chartering manager of Onego Shipping & Chartering b.v., have provided the author with overall understanding of the steel logistics, performing on the global market.

Although the secondary source data is not so reliable in comparison with primary data, the former has also been used effectively during the composition of the paper. The access to the companies' internal documents, such as official contracts, monthly reports, letters, invoices etc., was kindly granted to the author by Astra Shipping Agency, where the author has had an internship.

1.4.2 Other assumptions

As for the assumptions, the second one is the analyzed market. As the key market for the research, Russia has been chosen for several objective reasons. Firstly, Russian market is quite saturated with large steel and mining companies and it means that any foreign company in the industry may encounter the strong competition. This makes the research more valuable because the logistics component has become the predominant one. In spite the fact Russian companies in the examined market have strong brand name and awareness («EVRAZ plc», JSC «Mechel», JSC «Severstal»), the foreign enterprise can only work effectively if they are able to assure low operational costs. Hence, the studied steel trading company Coutinho & Ferrostaal (C&F) has to think in terms of costs minimization and only logistics is nowadays responsible for it in the industry (W. Snatkin 2012, personal communication, 16 July).

The third limitation is the commodity class. After the in-depth interview with Mr. Snatkin (C&F) has been done, the author has constricted the scope of inquiry. If the partnership between Coutinho & Ferrostaal and Astra Shipping Agency is taken as the foundation of the research, the special sort of goods has to be analyzed – ore with the polymer coat. The latter has two main peculiarities on the studied market. First of all, it is the seasonal deficit. Secondly, there is a sufficient level of local production and the latter determines the price level of the market, which is varied from plus to minus 10 percent. As a result, the product is in-demand, but in certain prices' framework. It implies, that the good has to be offered at the competitive price, which gives the seller possibility to sell the ore at a profit (W. Snatkin 2012, personal communication, 16 July).

The fourth assumption concerns the privacy policy. As Astra Shipping Agency is the limited liability company, it is not interested in information disclosure. It means that in spite the fact the thesis paper contains a number of specific figures, some financial data has not been available (bookkeeping report, profit & loss statement, cash flow statement). However, the representatives of the companies have discussed some financial criteria in general during the interviews.

2 Global steel industry

2.1. The basic characteristics

To start with, the definition of steel should be done. Steel is an alloy combination of carbon and iron and it's characteristics are determined by the other elements in addition to carbon. There are two main ways in steel production. The first one is an integrated smelting including blast furnace (BF) iron making followed by basic oxygen furnace (BOF). The second one is an electric arc furnaces (EAF) (World Coal Institute, 2007).

Steel industry is one of the locomotive of the world economy together with oil and gas, chemical, construction industries. In spite of the crisis in 2008, which was the reason for steel market fail on 25%, the latter is dynamically developing and nowadays, according to Mr. Waleri Snatkin, the steel industry has almost totally recovered after the world financial crisis and at the present moment demonstrates the 2007 key figures (W. Snatkin 2012, personal communication, 16 July). Steel industry is a complex market with highly complicated production process as well as with big amount of goods, related to the industry.

Basically, the steel industry's goods can be conditionally divided into 2 main groups: raw materials (iron ore, coking coal) and finished / semi-finished goods (different tubes, hot and cold rolled coils, pallets etc), For instance, vertically integrated companies cover all production process and in such a manner sell raw materials as well as finished products. Although, there are hundreds of steel trading companies, which very often specialize on the specific product range, such as for instance the studied company – Coutinho & Ferrostaal GmbH.

Demand for iron ore has increased sharply during the previous decade. It was mostly stipulated by the still growing Chinese economy. Such dramatic growth of the demand was the core one during the period 2000 to 2008. Although the domestic production of the iron ore in China has also increased since 2000, it was not enough to feed the appetite of the Chinese steel industry. At the present time, when the market is not so predictable, the market structure for iron ore trade is in the process of adjusting to the new dynamics of iron ore demand and supply. Also historically, the market balance was relatively predictable, resulting in a respectively stable price that cleared the market.

Raw materials (iron ore in this case, and also coking coal and other steelmaking raw materials) can be linked as a function of steel production. Raw material production has recently been known as the new investments had been well announced and has taken a few years to come into production. Similarly, the steel demand was relatively well known and has grown only moderately. The above-mentioned has been drastically changed during the past decade and it is now influencing the stability of the markets for steelmaking raw materials.

The future is more uncertain, with a large range of factors, which impact on the availability of supply of steelmaking raw materials. Apart from needs to develop the new minefields, the existing infrastructure required the constant supply of raw materials, such as ports and railways, which are under pressure. Uncontrollable effects, such as adverse weather regularly have an impact on the balance between

supply and demand in the market. All the above-mentioned contribute to increasing uncertainty of supply and volatility of the cost of raw materials to steel producers.

The steel production is highly dependent on the price of raw materials and as a result is very sensitive to any changes in production costs. In order to produce different types of steel goods, manufacturers (who are the biggest intermediate consumers) have to obtain the big amount of raw materials. As a result, due to increased volatility (caused mainly by world financial crunch), the costs of raw materials have a significant impact on the sustainability of the steel industry (W. Snatkin 2012, personal communication, 16 July).

In such a manner, according to the author of this paper, major issues in raw materials supply are as following:

- New projects realisation can be seriously limited because of insufficient infrastructure, financing problems and bottlenecks in acquiring environmental permissions;
- Existing supply sources also face the increasing risks such as adverse weather (for instance, in Australia) and export restrictions in the major exporting countries;
- Global steel industry is expected to continue the growth despite high uncertainties in the global economy. Also, raw materials demand may stay robust for the time being.

According to the global data, steel production has shown strong growth during the past decade; and the growth was mainly stipulated by the dynamic development of the East. During the past decade, China has grown rapidly and now almost 50% of global steel production take place in China, with other regions remaining relatively stable as producers (Ernst & Young, 2012). Mr. Waleri Snatkin, whose company is nowadays strongly influenced by Chinese steel producers, also mentioned half (around 50**%**) of the global steel production in China.

In addition to many changes in the raw material supply chain, the steel industry had to struggle with the impact and repercussions of the world financial crisis, which has started since 2008. As a result, the capacity utilization has decreased significantly and a lot of companies were forced to cut the production (Ernst & Young, 2012). However, it should be emphasized that at the present moment the industry's recovery is unbalanced and varies between regions. For instance, the world developed regions are lagging the developing regions, as is clear from the lower growth rate in steel consumption for the European Union (EU). As for NAFTA, it has gained a lot by including Mexico as the member state. The exceptionally high growth rate for Africa is partly the result of weak steel consumption at the beginning of 2011, owing to the political uncertainty in the region during the long period of time in 2011. Lastly, it is interesting to note that the growth rate for the steel consumption in China is slowing down. The latter, however, is stipulated by the fact China is growing in general but in the slower pace (Datamonitor, 2011).

Globally, the steel industry and steel consumption have grown by slightly more than 20% between 2007 and 2012 – indicating a continued robust and significant demand for steel. For instance, according to Mr. Waleri Snatkin, the steel market

has grown up to 15% from the beginning of world financial crunch (W Snatkin 2012, personal communication, 16 July).

However, it is notable that by excluding Chinese steel market, the world global industry still demonstrates the growth.

The important role of China in the steel market can not be ignored as it is evident from the fact that China has accounted for 53% of the additional growth in the steel demand between 2010 and 2011. NAFTA and the rest of Asia and Oceania were also playing an important role in the growth of demand between 2010 and 2011 (Datamonitor, 2011).

The dynamics of the metal export (supply) and import (demand) by type are presented in tables 1-6.

Table 1 Export of iron and steel (US Dollar thousand, world and top 24 countries)

Exporters	Exported value in 2004	Exported value in 2005	Exported value in 2006	Exported value in 2007	Exported value in 2008	Exported value in 2009	Exported value in 2010	Exported value in 2011
World	251087526	284150598	330772385	431896352	526432439	277485264	389194350	467019688
Japan	21202596	24366283	25960476	30148181	39199765	28401604	38876138	42181229
China	11466727	15089710	25131810	39958005	53473073	13481835	28931498	39877628
Germany	20452864	23567126	28464567	37051522	40079461	22973632	29440651	35657115
Republic of Korea	10578488	12804737	13985417	16445556	21333979	15463947	21751233	27581063
United States of America	8917444	11341776	12621402	17097396	23834675	15399594	19826432	25278434
Belgium	14327912	16356143	20055313	25929612	28041908	14556440	17899351	22558045
Russian Federation	15973591	17870944	17852127	21114771	28602694	14724663	19085705	21984917
Netherlands	7522998	8427533	11612155	18009364	19695343	11118723	16162413	19581525
France	13598343	14309109	16840677	20533949	22185198	13079832	16615840	19329200
Ukraine	10765600	11451281	13051226	16733313	22954442	10251340	14626509	18464947
Italy	9101423	10166860	12872140	16923616	18955383	9175309	12572544	16692317
Brazil	6709819	8548649	8793266	9534401	12845907	6723337	8385692	12013889
Chinese Taipei	7127557	8096296	9200683	11061178	11478941	7933983	10034606	11710012
United Kingdom	8108006	9283922	9437806	12212123	13392081	6738699	8948521	11315787
Turkey	5313308	4973475	6273353	8372266	14946356	7638772	8761259	11234366
Spain	5304172	5741682	6955731	9643695	12019440	6793722	8880154	10942853
Sweden	5953154	7011810	6922522	10429265	10708238	5030067	7694399	9294724
Austria	4065201	5266703	5734815	7803997	9850005	5354177	6617696	8362731
South Africa	5555082	5769597	5525089	7495582	9057949	5270653	7929536	7983509
Canada	4098858	4814333	5494409	6113768	8482138	4472312	6845286	7770975
India	3499059	4333672	5188770	5983152	8198676	4386433	6996228	6268400
Finland	4133210	4388099	5361894	6409957	6246050	2975391	4681355	5526713
Czech Republic	2797552	3018845	3549730	4638048	5931813	2823133	4025677	5335521
Poland	2758998	2466289	2861051	4565068	6499207	2838690	3782002	5315280

International Trade Center 2011

According to the above data from the Table 1, the booming growth of Chinese steel industry can be seen. Started from 11466727 thousands US dollars in 2004 as an export of iron and steel, China has more than tripled this amount. This table is a good evidence of mentioned before details concerning China. As for Russia, the total growth from 2004 to 2011 is not so rapid. Russian steel companies exported more than China in 2004, however now China is exporting almost twice more. The table 1 shows us that at the current moment the industry is at the same level as it was in 2007. The peak of the world market export of iron ore and steel was in 2008 and was equal to more than 526432439 thousands US dollars.

Table 2 Export of Copper and articles thereof (US Dollar thousand, world and top 24 countries)

Exporters	Exported value in 2004	Exported value in 2005	Exported value in 2006	Exported value in 2007	Exported value in 2008	Exported value in 2009	**Exported value in 2010**	**Exported value in 2011**
World	62103051	77385764	135643792	154014045	151344894	106463862	161225216	185777633
Chile	9816715	12194675	21482972	24938927	23447925	19045475	28074826	30475939
Germany	6111526	7222307	12532914	14940367	14769271	9249030	13889054	16814172
United States of America	3435914	3935666	6597591	7218936	7214629	5053938	7796423	9597953
Japan	3201879	3858379	6430318	7983253	8160035	6455366	9057285	9291574
Zambia	684438	1005708	2613420	3286622	3278667	2914028	5417508	6753308
China	2141661	3055292	5831603	5285116	5605875	3574551	4802012	6743804
Belgium	1642312	2101850	3713242	4104551	4314493	2879526	4389644	5098352
Russian Federation	2092578	2535200	4434484	4658581	4117013	3557625	4918870	5028617
Republic of Korea	1989505	2333880	4016601	4253004	4149155	3047652	4393776	5018131
Poland	1445373	1922153	3323845	3339468	3449625	2848018	4275114	4870724
France	2567844	2904883	5041168	5443631	5114772	2756553	3744416	4712055
Netherlands	754635	941234	1509072	4515068	4133685	2534065	3674680	4661707
Italy	1993914	2120104	3740122	4639819	4432233	2925264	3936889	4575717
Australia	1250348	1524786	2526830	2856881	3060978	2133977	3063597	4373086
Chinese Taipei	2099844	2501106	4031069	4531534	3994136	2696653	3847568	4087304
Indonesia	798173	1257526	1904420	2731694	2202460	2367121	3305777	3810673
Canada	1816819	2374541	4073750	4632541	4601223	2413618	3304724	3556177
Spain	1013516	1284455	1965741	2255022	2642209	2082137	2761030	3458879
Peru	1507774	2135147	3574211	2986922	3162472	2218415	3108921	3396389
United Kingdom	1266646	1380138	2420304	2559425	2616048	1766927	2563530	3317748
Bulgaria	727777	1038242	1923987	1862152	2363253	1454863	2057038	3253792
Mexico	791562	1184815	2007408	2357794	2132331	1370419	2049997	2941364
Kazakhstan	1198879	1507500	2631958	2805082	2906250	1550819	2488859	2875694
India	846569	1318922	2800998	2901348	2342041	1529976	5424571	2801479

International Trade Center 2011

The copper as the raw material is also very important in the steel industry and the global market leader is Chile. The latter exported value were 30475939 thousands US dollars in 2011. It is notable, that the biggest fail was also in 2009, right after the beginning of financial crisis.

Table 3 Export of Aluminum and articles thereof (US Dollar thousand, world and top 24 countries)

Exporters	Exported value in 2004	Exported value in 2005	Exported value in 2006	Exported value in 2007	Exported value in 2008	Exported value in 2009	Exported value in 2010	Exported value in 2011
World	92427687	104643982	138220039	162924741	168576663	114834809	150179792	175569899
China	5175296	6109102	9277266	11575029	14224671	9498521	14530901	18648585
Germany	9945118	11225113	14582724	18070640	18248101	12805502	15409001	18026382
United States of America	5977893	7486769	10100968	11097154	11942021	8362993	10602443	12970710
Canada	6746219	7883912	10746441	11397446	11029168	6614325	8921048	9921568
Netherlands	2982817	3261202	4414675	9022499	9499804	5775980	7696206	8914036
Russian Federation	4838629	5471523	7034198	8147323	8653406	5791207	6834781	7796427
Italy	4334611	4676701	5842265	6846268	6748357	4735504	5837989	6902510
France	3927963	4234446	5340677	6002284	6040377	4321397	5025360	5713521
Australia	3162770	3647749	4791819	5239599	5221420	3465455	4367441	5421567
Norway	3664285	3945613	5271919	6239544	6016048	3632194	4569603	5150054
Austria	2097596	2334722	2961928	3726317	3915523	2981966	3665457	4309318
United Arab Emirates		751820		781897	684236	1845531	3277499	4118628
United Kingdom	2793214	3312877	4152881	4768865	4355081	2531157	3435532	3816087
Belgium	2746324	2902765	3595609	4073649	3902852	2517585	3361421	3662431
Spain	1522467	1968692	2585044	3043695	3263679	2320137	2830308	3379427
Japan	1966325	2024365	2325213	2613135	2830482	2189649	2944325	2829479
Republic of Korea	1508194	1684997	1991692	2214804	2435991	1827340	2357692	2698236
Switzerland	1411287	1465056	1749751	2106855	2146934	1550368	2015052	2362114
Turkey	649488	875609	1233803	1619640	1776620	1399157	1917185	2287170
South Africa	1468358	1739268	2182453	2323510	2199855	1539660	1986506	2252419
Poland	1029981	1215602	1676817	2042205	2261493	1558888	1870541	2244766
Bahrain	945589	1344270	1457020	1348093	1774294	1149518	1768170	2153035
Iceland	530101	576262	817666	1263934	2105032	1407922	1910580	2128170
Sweden	1313507	1297034	1597954	1958808	1994563	1326177	1768670	2094568

International Trade Center 2011

China is the global leader in terms of aluminum export. The former has more than tripled the export value, started from 5175296 thousands US dollars in 2011 to 18648585 thousands US dollars in 2011. Russia is also in the world leaders of aluminum export, however, it is far away from Chinese volume. The difference is more than 10000000 thousands US dollars.

Table 4 Import of iron and steel (US Dollar thousand, world and top 24 countries)

Importers	Imported value in 2004	Imported value in 2005	Imported value in 2006	Imported value in 2007	Imported value in 2008	Imported value in 2009	Imported value in 2010	Imported value in 2011
World	264297060	300250809	339730746	452327406	552775629	290847697	394623849	475123973
Germany	17141723	21869048	26864492	39441758	43879766	20417466	29452057	38079155
United States of America	24008932	23621094	30703542	27078829	33608976	13052702	22517939	29630152
Republic of Korea	14083851	16360502	16892400	23132496	35785016	18442618	24870601	28438215
China	23691392	26209943	20035924	23015566	24533998	27816485	25326244	28380643
Italy	16202079	17617152	22516570	29211366	33039518	13083629	19376132	24903899
Turkey	8031522	9457831	11525251	16182379	23157920	11340993	16118937	20424246
France	12671204	13169274	15789518	19943730	22228765	11406940	14462069	18111548
Belgium	9225552	9659580	13254213	18544060	19891462	9442104	12521775	16707204
Netherlands	6241649	6673103	9213809	16053875	18310837	9372636	12895660	16285481
Spain	10154531	10466234	13208260	16836856	16920780	7603827	10492806	13123768
Thailand	6384194	8434155	7077801	12150067	13524109	6881114	10999403	13113913
Chinese Taipei	9680870	9263477	9127733	11465620	14905386	6700001	11225681	12794380
India	2714594	5310354	5567005	8374232	10772430	8462675	10701340	11612310
Japan	5262780	6805519	6141474	8300727	11318635	4910610	8498559	11372123
Canada	5904763	7049361	7914149	7771344	8801507	4803107	7479940	8614165
Indonesia	2717383	3344949	2865108	4174953	8281878	4356621	6371546	8580546
United Kingdom	6500526	6559434	7333856	9728146	9640197	4443235	6402049	8476655
Mexico	4873504	5615889	6971130	6876462	8763133	5185285	7264043	8315974
Poland	3266254	4173725	5446440	8131192	9774657	4996178	6518023	8252989
Vietnam	2682941	3075487	3163632	5623022	7782627	6150293	6616675	6880343
Czech Republic	2865383	3552048	4415381	6121977	7557892	3784258	5315467	6759280
Russian Federation	1855926	2546719	3584049	5722324	6372094	3324630	4750355	6303206
Malaysia	3465309	3652252	4212462	5697606	6532176	3648983	5420122	6296138
Sweden	4151765	4588920	4757221	8040874	7322037	3178805	5134097	6220289

International Trade Center 2011

Taking into consideration the global import of iron and steel, the biggest importer is Germany, which imported value was 38079155 thousands US dollars in 2011. Comparing with Russia, for instance, the difference is more than 6 times, whereas comparing with China, Germany imports around 1,5 times more. This is stipulated

by the above-mentioned fact, that China is dynamically developing and there are not enough domestic resources to feed the appetite of Chinese industry.

Table 5 Import of Aluminium and articles thereof (US Dollar thousand, world and top 24 countries)

Importers	Imported value in 2004	Imported value in 2005	Imported value in 2006	Imported value in 2007	Imported value in 2008	Imported value in 2009	Imported value in 2010	Imported value in 2011
World	93778509	104934242	137663626	163621760	164721115	111667486	146088427	172197396
Germany	9331775	10238956	14410035	18318535	17852565	11279219	15950289	19434243
United States of America	12970275	15898766	19418646	18577935	17999351	12003361	14718459	16205003
China	4930810	5011554	6193593	6745159	6834935	8540303	8795536	9772493
Japan	6597978	7187147	9507836	10054943	10614046	4998785	8046764	9219584
Netherlands	2678276	2885916	4594993	9281425	9357956	5529532	7229289	8834718
France	4705204	5010277	6538790	7608799	7511944	5283242	6398266	7742425
Italy	4257271	4376183	6203033	7666439	6686800	3642548	5672986	7117426
Republic of Korea	3175303	3718487	4877233	5293037	5443375	3439604	5160799	6059292
Mexico	2628657	2954133	3885447	4239447	4186459	2901032	4097597	5660897
United Kingdom	3207919	3508178	4397338	5310432	5131013	3897064	4091989	4829380
Belgium	2826215	3114433	3932285	4626983	4172601	2629516	3660076	4192478
Austria	2060642	2052865	2713278	3500117	3496071	2311624	3271614	4119769
Canada	2859300	3148759	3786873	3898251	3866118	2579992	3311260	3691281
Poland	1453205	1726794	2443906	3156256	3216153	2130330	2827716	3626485
Turkey	960582	1232036	1797133	2353479	2543704	1602427	2487587	3258840
Spain	2273662	2394625	3265834	4197662	3706668	2223818	2610347	3157643
Thailand	1471851	1712973	2165618	2367145	2769357	1784944	2693721	3012007
Switzerland	1340436	1439932	2060432	2539266	2629021	1906732	2356873	2890511
Malaysia	1015681	1122847	1454281	1827996	2020271	1473996	2162274	2673137
Chinese Taipei	1988885	1947178	2475516	2477121	2624295	1423513	2283153	2525003
Czech Republic	1124465	1240046	1717382	2222967	2378977	1555566	1997398	2441775
India	446328	756654	1090209	1440152	1590317	1417460	2063534	2133556
Hungary	1207358	919038	1406881	1770248	1827888	1144143	1653851	2124434
Norway	1113080	1176311	1600717	2144027	1973690	1139525	1954395	2061143

International Trade Center 2011

Almost the same picture can be found while analyzing the table 5, which shows top 24 world importers of aluminium. Germany is ranked as the first one with the value of 1943424 thousands US dollars. It is remarkable, that Russia is not in the list, which might be described by the sufficient domestic production. China is ranked as the 3rd one, however the difference between USA (№2) is more than 10000000 thousands US dollars.

Table 6 Import of Copper and articles thereof (US Dollar thousand, world and top 24 countries)

Importers	Imported value in 2004	Imported value in 2005	Imported value in 2006	Imported value in 2007	Imported value in 2008	Imported value in 2009	Imported value in 2010	Imported value in 2011
World	62176083	76187185	130048292	153475389	152712374	104507122	159907533	188423722
China	10476488	12896362	17186658	27167348	26051361	29513125	46183467	54251470
Germany	4557493	6089865	12705381	14960719	14348119	7878008	12575181	15918797
United States of America	5711329	8150016	14396823	13242155	11832500	6406773	8941092	11549842
Italy	4013413	4570191	9400912	9909713	8976293	4930202	8192066	9846385
Republic of Korea	2949292	3385422	5708155	6658804	6288871	4465852	6030016	7412689
Chinese Taipei	3107260	3532201	6187237	6536254	6385084	3722496	6064184	6492498
France	3239492	3554191	6394084	6698688	6527660	3182932	4762752	5636761
Belgium	1745742	1913517	3991577	4120893	4133664	3012722	4353562	5185132
Netherlands	1026212	1261657	2339805	4498174	4185902	2568391	3590234	4692695
Turkey	1079856	1458379	2469276	3152313	3275972	1985368	3299333	4118842
Thailand	1314408	1613855	2917911	3208746	3514325	2089528	3583143	4092469
Japan	1196616	1213448	2234304	2753588	3035608	1392949	2572984	3753095
Malaysia	1317226	1519413	2574575	3156950	2881726	1885586	3128240	3668888
Mexico	1725279	1968566	2986024	2980886	2972377	1879144	3100856	3329973
Hong Kong, China	1718836	1998135	2998938	3347907	3084811	2400246	3027872	2915732
United Kingdom	1767658	1885606	3098226	3045427	3009508	1705191	2534091	2877906
Brazil	626616	844291	1622302	2090081	2494759	1313717	2457652	2774536
Austria	878172	1013345	1816187	1982959	2188096	1477873	2230361	2696715
Spain	1370969	1516954	2603625	2781125	2715453	1394985	1850489	2492994
Canada	1314069	1693407	2353602	2326738	2273965	1309142	1732905	1876687
Sweden	625051	728232	1373600	1458831	1467748	1069311	1552040	1869265
India	484187	819537	1031596	1373896	1459351	1029850	1629986	1765872
Singapore	735978	847390	1872894	1597736	1492211	1032077	1328161	1761787
Poland	435104	540638	1118406	1515631	1593488	1061249	1575324	1756484

International Trade Center 2011

China is the biggest importer of copper in the world, whereas Russia is not even in top 24 countries. Germany is placed as the 2nd, however the latter looses a lot. The difference between top two countries in terms of copper import is more than 3,5 times. Chinese value of the copper import was equal to 54251470 thousands US dollars.

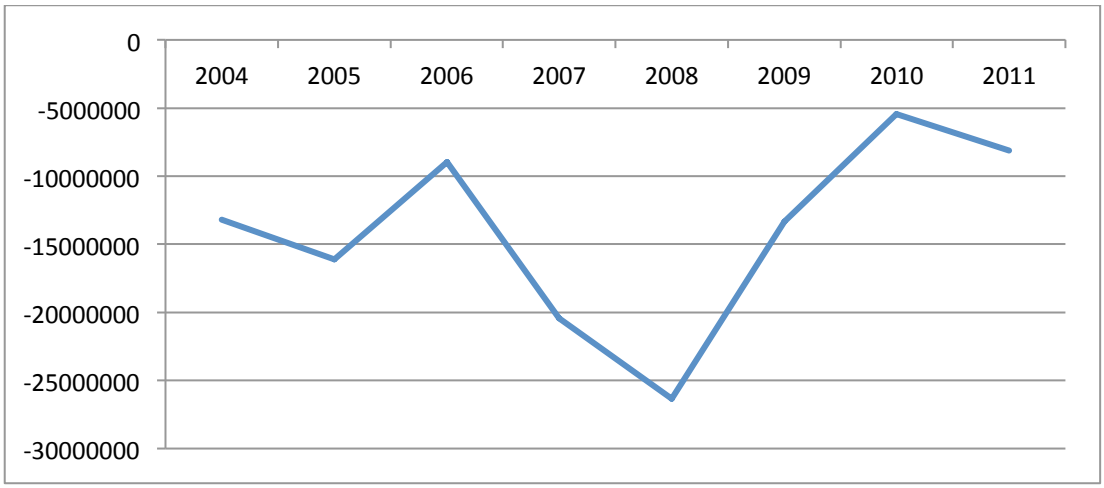

Diagram 1 The dynamics of trade balance (2004-2011)

Composed by the author

The diagram 1 is based on the above-mentioned tables (table 1-6) and is measured in US Dollar thousand and composed by the author of the thesis.

2.2 Challenges and trends

Despite the regional shifts in production and trade, the global steel industry faces three significant challenges in the near future.

Firstly, the weak economic growth is expected almost universally in the every region in 2012. While this does not mean that the global economy will go into a recession, it does mean that growth is expected to slow down, presenting the steel industry with more challenging market conditions.

Secondly, the changes in the raw material markets and the increasing volatility of these markets are going to harm steel makers and put them in front of the significant challenge. The options for steel manufacturers are varied from investments in their own raw material capacities to developing a focus on more exclusive steel products in the effort to maintain the level of profit margins (Ernst & Young, 2012).

Lastly, the steel industry will have to invest in the technological solutions to become more sustainable and to limit the impact of the industry on the environment. Taking into account the future, it is almost impossible to imagine modern sustainable society without also thinking about steel as the core element.

Looking at the import and export pattern in the steel industry from 2004 to 2011, some conclusions can be drawn. First of all, tables demonstrate who are the most steel-oriented countries in the world. They are: China, USA, Germany and Russia. The former is nowadays the engine for the progress, however this can not continue for a long time and the limit is very close. There is a big probability that Africa and

Mid-East will become a large net importer of the steel goods. This might be a reason of a young population and growing wealth as a result of exports of oil and other mineral resources. As a result, demand is far outstripping the supply in these regions, resulting in the growing net imports.
As for the Commonwealth of Independent States (CIS), it remains constant as a net exporter, while NAFTA is declining as a net importer. China has changed from a net importer to a net exporter during the period (Bloomberg, 2012).

2.3. The main transport routes

Nowadays companies have the possibilities to adopt a combination of proven supply chain inventory practices and a new generation of inventory collaboration and optimization technologies. By following this approach, companies are reducing the inventory levels across the firm and simultaneously improve the service and productivity.

As it has been mentioned before, the steel products can be divided into 2 main groups: raw materials and finished / semi-finished goods. Vertically integrated companies, such as Arcelor Mittal or Baosteel are able to serve customers with all range of steel goods – from iron ore and coal mining to providing a full range of steel products and service offerings.

2.3.1 Transport routes for raw materials

In such a manner, it can be noticed that the main routes of raw materials are not the same as for the final goods. This is stipulated by the fact that iron ore or coal are mined in the specific places on the earth and has to be delivered to the specific places, where the key plants are situated. It can be named as B2B business, however, in the majority of cases, iron ore minefields are owned by vertically integrated companies, which are then carry raw materials to their factories.

As for the iron ore, the majority of iron ore is gained in opencast mines in Australia, Brazil, China, India, the USA and Russia. Top-leaders are Australia and Brazil. Iron ore than is transported to ports by rail and then is shipped to steel factories in Europe and Asia.

As for the shipping component, the waterways have a particularly strong position in the transport of bulk goods. It has a leading role in transport of iron ore, coal, sand, gravel and chemical products. Maritime logistics is a mode, which combines significant capacities with relatively low operating costs (however, it is not so obvious nowadays, when the bunker prices are growing up drastically).

The latter stipulates the key shipping routes, which are used in raw materials transportation. The most popular one are from Brazil and Australia to Asia and Europe. This can also be predicted, because top biggest steel producers are Arcelor Mittal (head office in Luxembourg), Baosteel (China), Posco (South Korea), Nippon Steel (Japan), JFE Holdings, Inc. (Japan). For instance, crude steel output of the biggest steel producers in the world – Arcelor Mittal – was equal to 98’200’000 metric tons (mt) in 2010, whereas Baosteel produced 37’000’000 mt in the same year (Steelads, 2011). In such a manner, the main «customers» of the iron ore and

coal are concentrated in above-mentioned regions and hence, raw materials mined in Brazil and Australia are shipped to China, South Korea and Europe. As for example, European giant ArcelorMittal nowadays has 29 mining projects with plants in more than 10 countries. As for iron ore mines, they are located in such countries as Algeria, Bosnia, Brazil, Canada, Kazakhstan, Liberia, Mexico, South Africa, US, Ukraine. Moreover, the company is now developing new mines in Brazil, Canada, Liberia and Mauritania. As for the coal mines, the company is presented in Kazakhstan, Russia and US (ArcelorMittal, 2012). Taking into account the above-mentioned, it is borne in that raw materials routes are widely represented on the world trading globe. However, as it was said before, still routes from Brazil and Australia are the most intensive ones.

Raw materials are mainly transported to hub-and-spoke ports. For instance, the port of Shanghai in Asia and the port of Rotterdam in Europe. According to the official statistics from the port of Rotterdam, in the first quarter of 2012, imports of coal have reached 7 million tonnes (Port of Rotterdam, 2012).

Iron ore and coal are then transported to main plants. Turning to ArcelorMittal, the latter has steel producing factories all around the globe and has core divisions almost each part of the world. «Flat Carbon Americas» is responsible for slabs production, as well as for hot-rolled coil, cold-rolled coil, coated steel products. The division covers US, Canada, Mexico and Brazil. «Flat Carbon Europe» produces the same product range and is responsible for 15 sites in six countries. There is also a division, called «AACIS», which provides customers with final steel goods in 3 main regions – Asia, Africa and CIS.

Having examined the main activity of world biggest steel producing and mining company ArcelorMittal, it is borne in the main trading routes. Vertically integrated enterpises are in general constantly transporting their raw materials, which have been mined on their own premises to their producing factories mainly via hub-and-spoke ports. The latter have several benefits, which are indeed very crucial for the steel industry. First of all, the developed infrastructure gives market players possibilities to handle, store and tranship the cargo in the most effective way. Moreover, multi-modaity is an essential, because very often plants are situated far from the waterside and as a result, different transport modes should be used, such as trains, trucks, and barges.

2.3.2 Transport routes for final and semi-final steel products

As for the final and semi-final steel products' transportation, main transport routes are not so stricttly determined as in case with raw materials. The customers are situated all over the world and hence steel products' flows are very broad. However, some routes can be examined and they indeed depend on steel manufacturers. Significant level of different types of semi-final (e.g. slabs, blooms, billets) and final (reinforcing bars, welded pipes, seamless pipes, hot/cold rolled coils/sheets etc.) steel products are carrying from China, which (how it was repeatedly said before) is nowadays the leading steel market, which offer good quality and reasonable prices. A lot of steel products are being delivered to European hub-and-spoke ports, such as for instance, ports in Hamburg – Le Havre range. These ports have a big annual throughput of steel products.

For instance, the studied company Coutinho & Ferrostaal, which is one of the biggest steel trading company in the World, is situated in Hamburg and it is mainly stipulated by the hub-and-spoke port's presence. The company has it's own warehouse close to the port and it helps company to impove business processes a lot. Final steel products, which come from China or South Korea, are accumulated in firm's warehouse and then can be transported to the final customer regardless of his location. The developed port infrastructure helps to render all kind of services from handling the container with goods and stacking it in the yard to truck services in order to transport products to warehouse or directly to the end user (W. Snatkin 2012, personal communication, July 16).

Visually, the main raw materials and final / semi-final goods' flows are presented in the end of this paper (see appendix 4).

2.4. The main transport modes used in steel logistics

2.4.1 The waterways

The waterways have a particularly strong position in the transport of bulk goods. It has a leading role in transport of ores, coal, sand, gravel and chemical products. This can be explained by the typical characteristics of this transport mode. Vessel is the mode that combines high mass transport capacity with low operating costs, i.e. the line haul costs (per tkm) are low. It is a mode that also provides a high level of safety, which is a favourable condition to transport dangerous goods. In addition, ships as a transport is known for its high reliability of transport services, because of the ample capacity of waterways that enables congestion free transport.

On the other hand, inherent disadvantages of sea transport are its relative low speed and limited coverage of its infrastructural network compared to rail and road networks. In order to avoid relative expensive transhipment of cargo to other modes (road or rail), the latter usually restricts the transport relations for which barge transport is considered. The transport demand for ores and coal fits very well to the features of barge transport as it consists of large long-distance (international) transport flows at a limited number of transport relations, i.e. from seaports to steel industries and power plants, that enable cheap transport by using large vessels.

Taking into consideration raw materials, such as iron ore and coal, which are then used in steel production, the core transport mode is large-size vessels. Capesize vessels are huge bulk carriers that are able to hold a cargo of 140'000 tonnes or more (World steel association, 2011). First of all, it is stipulated by the nature of bulk goods. They are always ordered in big quantity and that is why it is viable to transport such type of cargo in vessels, because only the latter has the biggest carrying capacity. In the author's opinion, nowadays it remains the biggest advantage, which determines the usage of capesize vessels. As bunker prices go up rapidly, the economic effectiveness of large ship, more known as economy of scale has almost lost its meaning (Bunkerworld, 2012).

However, the situation is much worse in container shipping. As bulk shipping market can be characterized as almost perfectly competitive, with big amount of companies in the industry, the container shipping industry has the form of oligopoly. In this

sector companies are much bigger and have a lot of assets in terms of huge vessels (e.g. Maersk is going to finish the production of Triple-E – the biggest containership ever) and that is why it is much more complicated for them to maintain stability under the constantly changing conditions of the global economy.

The above-mentioned is crucial in terms of final and semi-final steel products' transportation, which are very often carried by containership. The latter is stipulated by the necessity to deliver a small lot of goods. For instance, Coutinho & Ferrostaal, which is examined company in this research, has a dominating share of container transportation in its business (W. Snatkin 2012, personal communication, July 16). The role and importance of container shipping market will be examined more specifically later in the paper, in Chapter 3.

Container-on-barge transport has developed very successfully in Europe during the last two decades, but this transport business has been primarily focused on maritime container flows and therefore, has developed as a typical transport system.

In a relatively short period of time barges have become a well-developed mode for transporting containers in Europe. Reliable and low cost barge services together with the provision of additional logistic services, such as the organization of drayage operations, have increased the interest in container-on-barge (COB) transport. And as a result, COB transport has shown annual growth figures of 10 to 15% for the last decade (Konings, 2009). Such rapid development of COB business is mainly defined by quality and position of inland waterways and the fact that deep-sea vessels have a strong correlation to barges.

Turning back to the historical facts of barge business, for a long time these international traffic flows have determined the platform for the COB transport market, but the last decade new geographical markets have also being opened up.

In particular in the Netherlands barge container transport has developed spectacularly, demonstrating that barge transport can also compete with road transport on much shorter distances than previously assumed. Nowadays there are more than 30 different services existed in Netherlands. About 880'000 TEU (twenty-foot equivalent unit) were shipped by barges predominantly between the port of Rotterdam and inland places. Later this multi-modal element between deep-sea vessels and end customers has been developed. For instance, the total number of inland terminals and barge services has rapidly increased for the last 10 years. Around 400,000 TEU were transhipped at the inland terminals in 2004. For example, the transported volumes recorded in Germany (170,000 TEU) and France (120,000 TEU) are relatively modest, but hinterland container transport by barge is constantly developing in these countries (Konings, 2009).

2.4.2 The railways

In general, the rail transport is used to deliver passengers or cargo from point A to B by way of wheeled vehicles, which run on special rail tracks. Basically, the routes of trains are determined and they are not so flexible as cars. However, the routes are also determined in case of sea vessels.

In the author's point of view, the main peculiariaty of rail transport is it's national identity. In comparison with vessels, which are mostly moving internationally rather than doing short-sea shipping, trains are mostly moving domestically. This idea can be proved by existence of national railways companies in many developing and developed countries. For instance, in Russia there is indigenous company called Rossiyskie Zheleznie Dorogi (RZD), whereas in United States there is famous Union Pacific Railroad.

In such a manner, the importance of railways in terms of steel logistics can not be underestimated. For instance, Russia has a significant number of steel producers, whose main premises and plants are located deeply on the mainland – in Siberia or Ural. As a result, the most rational way to deliver raw materials as well as final products is to use railways. The latter offer ample level of capacity and reasonable costs per wagon.

Indeed, there are some drawbacks, which make the usage of railways not so obvious. First of all, the problem is high infrastructure costs. In order to build the railways, a lot of things have to be done in advance. First of all, it is important to determine the most valuable route. Then, a lot of works should be done like, for example deforestation, which is distinguishing feature of Russia. In addition, a lot of rail-tracks have to be ordered to cover the entire route. Besides that, a lot of inventory has to be supplied. All the above-mentioned demand the significant investments either by state funds or private investments or even both. As a result, a lot of world regions do not have well-developed railway infrastructure.

However, the importance of railways as the transport mode has grown significantly for the last years. This is determined by rapid appreciation of alternative carrying modes. Sea freight is becoming more unpredictable and a lot of carriers add bunker surcharge costs into the charter-party in order to guarantee relative break-even of the carriage (Y. Leontiev 2012, personal communication, 15 January).

As for example, Russian railways strategy 2030 is the development of international corridors. According to the project, Russia plans to create a logistics network, that is going to facilitate transport acitivities between Europe and Asia. Such project will increase the trade among Russia, Europe, CIS and Asia-Pacific. Trans-Siberian route is also constantly developing in order to guarantee an adequate service quality. In such a manner, to make customs procedures less time-consuming and more reliable, a series of measures, such as advanced IT systems – freight customs declaration system – have been developed. The latter gives possibility to cut the total border stationing from more than 5 days to several hours. As for the competitor to maritime transport, there is a project to create an international corridor on the North-South axis. The latter is going to connect Europe, the Persian Gulf and the Indian Ocean. This line will also be linked with the Trans-Siberian route. According the forecast, the freight volume, which is gonna be transported via this route, will be of 190'000-240'000 TEU/year/direction (RailwayPro, 2010).

As a result, the rail transport is very important in terms of steel products transportation. The former replaces the maritime transport in cases when facilities are situated far away from the sea.

2.4.3 Road transport

Road transport is mainly presented by trucks, which are able to transport relatively big amount of cargo via public-access roads. The main advantage of this transport mode is flexibility. That is why trucks are very often used on the last leg of transportation – to the final consumer. Road transport does not need any specific infrastructure in comparison with maritime carriage or railways. Moreover, trucks as a moving unit are less expensive.

However, this transport mode has some disadvantages. First of all, the total capacity of one truck is significantly smaller compare to any vessel or set of cars. As a result, the transportation of the cargo in big quantity by road transport is totally unprofitable due to the necessity to involve big number of trucks and an upward oil prices. In such a manner, it is almost impossible to deliver raw materials (such as iron ore and coal) via the roads due to the big size of cargo per lot. This barrier determines an important specificity of road transport – the carriage of final goods. The second bottleneck of the road transport is the congestion. In the majority of cases, the road infrastructure implies the simultaneous movement of private cars and trucks on the public-access roads. As the number of cars, owned by private, is going up sharply, the traffic jams become the biggest barrier, which forces independent truck owning companies to break the deadline. As for the third drawback, it should be said, that road transport is considered to be the most polluting one and that is why many countries impose special restrictions to truck owners. As a result, the total carriage price is going up and it makes this transport mode less competitive.

Table 7 The comparison of main transport modes

	Maritime transport	Railways	Road transport
Advantages	- possibility to carry large volume of cargo; - mainly international transportation mode – link to global exchange; - significant routes portfolio; - safety; - predictable schedule	- possible to carry large volume of cargo; - the most effective way too reach the production plant; - safety; - reliability; - price/service ratio	- flexibility; - «end customer mode»; - abundance
Bottlenecks	- complexity to find an «opened» vessel due to the current supply-demand imbalance; - high bunker prices; - slow speed; - the necessity to get into the line with container shipping line's schedule	- very expensive infrastructure; - environmental concerns; - the lack of routes;	- can't be competitive in terms of large cargo lots; - environmentally unfriendly; - congestions; -safety

Composed by the author

3 Russian steel market

3.1. General characteristics

Russia as the largest country by area in the World has altered dramatically for the last 20 years, since the Soviet Union was collapsed in 1991.
Russia nowadays is the only country in the World, which collects all elements of periodic table in the ground. And it is simultaneously the core advantage and disadvantage of Russia. On the one hand, while the price for the oil is high, Russia gains a lot by selling petrol and gas worldwide and earning billions of US dollars. On the other hand, the term «Oil dependence» is brightly reflects the current situation in Russian economy. A lot of brilliant scientists leave the country and prefer to work in USA or Europe. The attempts to become independent of oil are futile and obviously Russia will experience hard times if the Brent price goes down sharply (Buckley, 2012).

Talking about «oil dependence», the author of this research also means the steel industry. According to the World Steel Association, 4 of 25 largest steel producers in the world are from Russia (Steelads, 2012). They are: JSC «Severstal», JSC «Evraz Group», JSC «NLMK» and JSC «Magnitogorsk Iron and Steel Works» (MMK). These companies are still very profitable. For instance, according to the annual report of JSC «Evraz Group», the company earned as a net profit $453 millions, whereas it's local competitor JSC «NLMK» earned more than 3 times more than Evraz. The former earned $1,4 billions in 2011. (EVRAZ, 2011)

However, Russia is far away from Arcelor Mittal, which is the biggest steel producer in the World, with the headquarters in Luxembourg. The latter manufacturer totally produced 98'200'000 mt in 2010, whereas the closest Russian rival Severstal produced only 18'200'000 mt at the same period of time (Steelads, 2011). Chinese companies, such as Baosteel, Shagang Group and Ansteel, demonstrate high figures of annual output. The latter shows that in spite the fact Russia produces a lot of metal, it becomes difficult to compete with foreign rivals. As a result, more steel products are penetrating on the market as an import.

Steel industry has significant share in Russian economy at about 5% (the second after oil & gas with 30% share), but has shown the weak growth rates in relation to other industries. Steel industry has had the lower growth than Oil & Gas and entire industry, because of two major factors:

- Slower prices recovery for steel products – Brent price grew 26% in 2010 in comparison with 2009, HRC and Rebar – 5% and 16% respectively;
- Slower steel production volumes recovery – in 2010 compared to 2007 oil production was 2,9% higher; steel production was 7,5% lower (Roland Berger, Strategy Consultants, 2012).

What should be expected further depends on endurance of positions of steelmaking sector in the world market.

Russian steel industry is consolidated among six major players: Evraz, MMK, Severstal, NLMK, Mechel, Metalloinvest, which account for 86% of crude steel production. Evraz, Mechel and Metalloinvest predominantly specializes on the flat

steel production, whereas MMK, Severstal, NLMK – on the long steel production (Severstal, 2011).

Russian players are still recovering from the hit of 2008-09 financial crisis and have not reached the pre-crisis level of production. NLMK has been able to return to the pre-crisis level due to the export increase.

After the analysis of several Russian steel producers' annual reports (such as Severstal, NLMK, Metalloinvest and Evraz) the current companies' strategies have been determined. They are mainly focusing on four major topics:

- vertical integration to create stability in material provision and cost control;
- modernization of current production facilities and building the new ones to expand product mix and reduce operational costs;
- international expansion to add production capacities and acquire modern technologies;
- production optimization to sustain cost advantage and improve efficiency.

Domestic steel market is divided between the 6 biggest companies with a high level of specialization by type of the products: flat, long, pipe products.

Low consumption of high value-added products is explained by the weak localization in the automotive and not well developed machinery industry in Russia.
The apparent steel demand in Russia was 30.3 millions mt in 2010, or 120.3% of 2009 demand. The steel demand in Russia has been led by strong activity in the pipe and tube sector due to realization of some large projects by JSC «Gazprom» and JSC «Transneft». Production in the automotive industry recovered post-crisis thanks to the implementation of a 'cash-for-clunkers' programme. Domestic consumption of steel pipes in 2010 was about 8.5 millions mt, or 150% of the 2009 level - from which the LDP share was 3.0 millions mt. Total Russian steel tube and pipe production capacity reached about 13.5 millions mt in 2010. (NLMK, 2011)
The accumulated depreciation of Russian metallurgical equipment now exceeds about 43%. In 2009-2010, state guarantees in the metallurgical sector involved loans for a total sum of 53.4 billions roubles. Total 2010 investments in the Russian steel sector reached about 160 billions roubles (The Government of Russian Federation, 2010). Notable modernization projects in 2010 involved:

- the commissioning of a modern complex for manufacturing LDP [named 'Height 239'] at the Chelyabinsk pipe plant, which took place in July 2010. This involved start-up of a new tube shop for manufacture of single weld longitudinal welded pipes of the large diameter (508-1420 mm) with external anticorrosive and internal coverings, with 600 kt of capacity. The cost of this project was about 21 billions roubles.
- The modernization finalized in November 2010 of the electrosteel melting complex at Pervouralsk [named 'Ferrous Ozone 32']. This involves around 950 kt of capacity at the Pervouralsk tube plant (ChTPZ Group). The new melt shop will allow the company to raise the quality of seamless pipes and to take out of service the dated OHF shop. This project cost was about 17.6 billions roubles.

The Ministry of Industry of Russian Federation was heavily involved in actualization of most priority investments projects for the Russian metallurgical complex in 2010. The total sum of these investments projects in Ferrous metallurgy in the next 5 years was around 370 billions roubles. In 2011, these main investments have included:

- putting into operation a heavy plate mill “5000” on Vyksa metallurgical plant of OMK Group (third HPM 5000 in Russia after Severstal and MMK);
- a new cold strip rolled mill “2000” on MMK, Magnitogorsk;
- a new rail and structural steel mill on Chelyabinsk (Mechel) and reconstruction of Nizhny Tagil (Evraz) rails production;
- a new blast furnaces №7 at NLMK, Lipetsk;
- investment in a polymeric coating unit at Cherepovets (Severstal) with a further polymeric coating line for LDP being installed at the new ‘Height 239’ facility at the Chelyabinsk pipe plant (Steelnews, 2012).

Taking into account Russian national metallurgy, it should be said that the latter is very sensitive to any changes in the world economy. The new wave of crisis can strike on this branch of economy more severe, than on any other segment of economy (it was already observed in 2008).

In addition, according to experts "RIA Analitika" (Russian most respectful analitical bureau), the main potential for metallurgy within the country is defined by the demand from machine-building sector. As for The defense industry, it may become the main impetus. Rearmament and development of automotive industry is capable to create an essential support for demand for steel. The construction sector can become one more important factor of growth for branch, because metallurgy is essentially connected with volumes of construction works.
Successful development of construction branch can add another 2-3 percent to growth rates of metallurgy (Finance.mapsofworld, 2012).

3.2. Russian steel producers

Russia's steel industry continued to grow in the third quarter of this year, judging by production reports published by domestic steel makers (Analytical department of RIA RosBusinessConsulting, 2006). Their strong performance and rising prices on the Russian steel market may lead to the the fact that growth will continue in the fourth quarter.

Magnitogorsk Iron and Steel Works (MMK), one of Russia's leading steel producers, reported a net profit of 11.2 billion roubles (about 416 million dollars at the current exchange rate) in the third quarter of 2006, up from 8.9 billion roubles in the second quarter and 71 percent more than in the third quarter of last year. From January to September, the company's net profit amounted to 26.7 billion roubles (about 991 million dollars), up 11.4 percent on the year. MMK spokeswoman Elena Azovtseva told RBC Daily that the improved performance was due to rising steel prices combined with lower costs. She said the company was increasing production, both through enhancing the effectiveness of its existing facilities and the acquisition of new facilities. Dmitry Skvortsov, at Bank of Moscow, believes MMK's increased profit was also due to lower coal prices. MMK's performance was typical of the whole industry, says Denis Nushtaev, an analyst at IFK Metropol. Growing production becomes the norm for Russian steel makers (Analytical department of RIA RosBusinessConsulting, 2006).

Evraz Group, Russia's largest steel company, reported a 25 percent year-on-year increase in steel production in the third quarter of 2006, to 4 million tonnes. In the first nine months of this year its production rose 17.6 percent to 12 million tonnes. Pig-iron production increased by 29 percent to 3.2 million tonnes, and rolled steel production was up 26 percent at 3.7 million tonnes. "The group's Russian assets - Nizhny Tagil Metal Works and West Siberian Metal Works – reached the record production level of 1989," PR Director Nikolai Kudryashov told RBC Daily. Evraz attributes its production growth to a construction boom fuelling the demand for the group's products. To meet the growing demand, the company is taking measures to increase the effectiveness of its production facilities, and it is also buying new assets. "A new blast furnace was put into service in September," Kudryashov said. Producers of flat rolled steel also have reported the growth (Analytical department of RIA RosBusinessConsulting, 2006).

Novolipetsk Steel Works (NLMK) raised its steel output by 5.9 percent from July to September 2006, to 2.2 million tonnes. It also produced 2.2 million tonnes of pig iron in the third quarter, up 17.6 percent on the year but 3 percent less than in the second quarter. NLMK spokesman Anton Bazulev said the decline in pig-iron production was due to planned repairs. The company expects to produce 9.2 million tonnes of steel in 2006. Meanwhile, steel prices are rising not only on the domestic market but on foreign markets as well, boosting the profits of Russian steel makers, which export up to 50 percent of their production, says Dmitry Skvortsov, at Bank of Moscow. Yuri Vlasov, an analyst with Renaissance Capital, said all steel companies receiving operating profits from steel sales, will show better financial results in the third quarter. (Metal.com.ru,2012)

3.3. The peculiarities of Russian steel logistics

Total metallurgical goods transportation by the Russian railways grew significantly in 2010. Shipments of iron ore involved movement of 101.9 mt (+6.8%), of ferrous metals of 87.9 mt (+12.4%), ferrous scrap 20.9 mt (+26.5). In 2010 Russian export of ferrous metals amounted to ~30 mt (106.8% of the 2009 level) and Russia will thus remain the world number three exporter in 2010 after China and Japan. Russian export of steel pipes in 2010 was just 1.1 mt (69% of the 2009 level, only). (Rosstat, 2011).

Rail transportation is the main transportation mode for Russian steel industry, taking 89% of freight turnover of steelmakers. Other modes of transportation are unable to create alternative service because of geographical and historical conditions, described below.

In the author's opinion, the latter is mostly determined by the fact that Russia is geographically the biggest country in the World and maritime transport is very often not able to reach the industrial districts. In addition, Russian biggest problem since historical times is the roads. Their quality does not satisfy the requirements of safety and even practicability. In such a manner, as it has been already mentioned before, the railways are considered to be the most popular mode of transportation not only in case of steel industry but also in some other sectors. In addition, the core steel plants of Russian companies, such as NLMK, Severstal or Evraz are located close to minefields in Siberia and Ural. River transport can not serve all the volume produced by vertically integrated giant firms. It is mainly due to shallow water, which can only be served by barges with capacity from 600 to 1500 metric tonns. Hence, railways, which are generally dominated by the state company RZD, have a biggest turnover of steel goods in case of domestic transportation (L. Rozhdestvenskiy 2012, personal communication, 23 July).

It should be also said that being in process of restructuring, Russian railways suffer infrastructure's bottlenecks in some industrial zones and increase in empty run of rolling stocks. That creates the significant pressure on the steel makers in terms of stability in material supply and provision of in-time shipments to customers.

Owing to lengthy distances in Russia, rail transportation has started to play a crucial role in the steel industry. Other modes of transportation, such as roads and inland rivers, are used much less than rail transportation. However, the latter modes of transportation are actively used in Europe. It can be described by shorter distances in Europe and their better development compared with Russia.
Low level of iron ore transported by rail in Europe partly explained by the locations of the main European steel plants near the rivers or coast. Iron ore are shipped to these plants directly by vessels (L. Rozhdestvenskiy 2012, personal communication, 23 July).

4. The partnership of Coutinho & Ferrostaal and Astra Shipping Agency.

4.1. Coutinho & Ferrostaal GmbH & Co. KG

Coutinho & Ferrostaal (C&F) is one of the biggest independent steel trading companies in the world. According to the official website, the core competence of the company is the disposal of raw materials and steel products throughout the entire steel industry chain. Hence, the company is responsible for providing the customers all over the world with high-quality steel goods. In order to meet the buyers needs C&F makes the full service, including transportation, warehousing/storage, customs clearance, delivery and financing (Coutinho & Ferrostaal, 2012).
The company was established as an alliance of three enterprises: Villacero, MPC Münchmeyer Petersen & Co., and Ferrostaal AG. This joint venture was found in 2008, however the primary companies started the business in 1894.
At the present time, C&F has three independent central operation hubs, which are situated in Hamburg, Essen and Houston. As a result of such hub's location, company's zone of presence covers a lot of countries, serving the steel goods from Germany to USA. In addition, firm's branches and subsidiaries are situated in 58 cities around the world.
Total number of employees is nowadays more than 300 people.
Geographically, the business of the company can be divided into 8 regional districts. They are:

- North America;
- Latin America;
- UK, Ireland, Southern Europe and MENA;
- Western Europe and Sub-Saharan Africa;
- Northern, Central and Eastern Europe, and Central Asia;
- Eastern Asia
- Southeast Asia and Oceania
- South Asia

In such a manner, C&F covers almost the entire world and its core administrative hubs, located in Houston, Essen and Hamburg provide the customers with the logistics and financial services in each step of trading network, which allow C&F to sustain the reputation of the best steel trading company in the world. In order to prove it, the firm is nowadays presented in large construction projects. According to Mr. Snatkin (C&F), at the present moment company extensively participates in tender projects in African region (W. Snatkin 2012, personal communication, 16 July).

4.1.1. Product range

As for the assortment of products, the studied enterprise is able to offer a big amount of steel products' varieties. First of all, the division of product range can be done in 2 main groups – semi finished and finished goods. The former are basically raw materials, which are: pig iron; direct reduced iron; hot briquetted iron; slabs, blooms, billets. As for the finished goods, they can be separated into 4 subgroups:

- Flat products –
    - Hot rolled plates;
    - Hot rolled coils/sheets;
    - Cold rolled coils/sheets;
    - Galvanized coils/sheets;
    - Aluminized coated coils/sheets;
    - Prepainted coils/sheets;
    - Tin plates.
- Long products –
    - Reinforcing bars;
    - Merchant bars – angles, flats, squares and round bars;
    - Steel sections – beams, profiles;
    - Sheet piles;
    - Wire rods;
    - Wire and wire products
- Pipe –
    - Welded pipe;
    - Seamless pipe;
    - OCTG pipe;
    - Mechanical and structural tubing
- Special steel –
    - Alloyed and high-carbon steel;
    - Forging-grade steel;
    - Forgings;
    - Bright steel;
    - Stainless steel.

According to the above-mentioned, the wide-variety of the products guarantees the sufficient supply on the steel market and in such a manner expand the demand for the steel goods, because almost each business or sector can find an optimal offer. At the present moment, among the industries, which cooperate with C&F, there are:

- Oil and gas;
- Construction;
- Aviation;
- Automotive;
- Shipbuilding;
- Appliances;
- Windtowers (Coutinho & Ferrostaal, 2012).

4.1.2. SWOT-analysis of the company.

In the author's opinion, each company, which decides to adapt any strategic decision, has to weight its strengths and weaknesses, which are internal factors, have to be determined as well as opportunities and threats of external environment. This approach indeed can be viewed as a strategic planning process. It is very beneficial tool, because it helps to correlate company's capabilities and resources with competitive environment (Kotler, 2009). In case of this research, SWOT-analysis is the essential drive, because C&F also has an activity in the foreign markets and the effectiveness of its international business is indeed the competence

of strategic management. In spite the fact, the current research takes into consideration the logistics component of foreign deals; however, it is crucial to analyze the studied firm by using above-mentioned analysis. The effective logistics can not be performed itself. It might be only the case if all drawbacks and advantages as well as peculiarities of external environment are taken into consideration.
In spite the fact that C&F is one of the largest independent steel traders in the world, it has an organizational structure of limited liability company (LLC). Moreover, the company does not figure in mass media and hence it seems hardly to analyze such company without any internal communications. However, the in-depth interview with company's representative has helped significantly in terms of SWOT-analysis composition.

Table 8 SWOT-analysis of C&F

Strengths: - The wide-variety of the products - The high quality of the goods - Large clients' portfolio - Strong brand name - The absence of costs, connected with proper production process; - Flexibility - Effective current logistics scheme	Weaknesses: - Dependence on steel producers - The shortage of advertising, Public Relations (PR) and other marketing activities on the foreign markets; - Unstable profit
Opportunities: - The potential growth of Russian market because of stable oil prices - The entrance of Russia in World Trade Organization (WTO)	Threats: - Russia as a sufficiently corrupt country - Strongly competitive market - New turn of crisis

Composed by the author

Strengths.

As it has been already mentioned in the company's description, C&F is able to provide customers with almost all types of steel products from semi finished to finished goods. Such service is highly beneficial in the steel industry. Taking into consideration the Russian market, the local players have narrower product range. Moreover, because C&F is a trader, it is able to offer the steel products from different producers. For instance, as it has been told in the first chapter, the big amount of steel is nowadays coming from China. Chinese products are cheaper, because of economies of scale, and also have a good quality. In comparison, Russian steel can not be price competitive towards Chinese, due to lack of technology and resources.

Large clients' portfolio is also the advantage of C&F. Company has strong participation in global projects. As it has been previously told, the company is now intensively operating in Africa. The big clients' portfolio is very strong competitive

advantage, which is closely connected with firm's brand awareness. Nevertheless the studied company was established recently, the history of basis companies took the root in 1894. However, there should be done some explanation. Strong brand name is only the advantage in terms of B2B cooperation. Steel producers are familiar with C&F as a reliable business partner. As a result, the steel trader is able to choose its suppliers.

One of the most important company's strengths is the absence of proper production process and as a result, the production costs. Traders usually participate as intermediaries between producers and customers and earn the percentage from sales. Such strategy, which can be described as to buy at the lowest price and sell at the highest one, is quite beneficial, because it gives possibility to concentrate on value-added services instead of the production. In such a manner, the firm will pay attention to trading (sales), logistics, financing and strategic functions.

Flexibility is very important aspect, especially in terms of big enterprises. It makes the company possible to react faster on the externalities than own-production companies. It is much easier for C&F to adapt to the new market conditions. Such adaptation can be achieved by supply redistribution. For instance, if Chinese market goes down in accordance with global economic forecast, C&F will switch to emerging markets, for instance, Turkey.

The last but not least is the effective logistics scheme. According to Mr. Snatkin, the current cooperation between C&F and Astra Shipping Agency can be viewed as an effective one, because at the present moment it meets the expectations of head company (W Snatkin 2012, personal communication, 16 July).

Weaknesses:

First of all, it should be mentioned that traders as a business model are highly influenced the producers of the goods. For instance, if the trader and the manufacturer made the deal, which has been revoked later, the former bears the responsibility and liable to the final customer.
As for the shortage of advertising and any Public Relations (PR) activities, these can also be viewed as disadvantage of the studied company. Although the steel industry's players do not use marketing tools a lot, some actions towards final customers have to be done in order to increase the brand image or awareness. It does not need to be done in terms of TV advertising or any other massive campaigns. It is better to arrange via personal communications and marketing research tools, such as qualitative or quantitative interviews, in-depth interviews with the clients.

In comparison with steel manufacturers, the trader is less profitable due to the absence of the own production line. It is obvious, that vertically integrated companies such as Russian Severstal or French Arcelor Mittal are much more profitable and they are more willing to predict possible annual outcome. However, such companies are less flexible and hence can not adapt to changed market conditions in the same fast way as steel traders.

Opportunities

The main opportunity, which has been determined by the author of this paper, is the potential growth of Russian market. According to the data, gained from the secondary sources and mentioned in the second chapter, Russia can demonstrate the total growth. In spite of forecast, Russian GDP has shown the increase by 4,9% (RIANOVOSTI, 2012). It means that the economy is reviving and it leads to the fact that customers will start to use the products of C&F in a more active way.

The second opportunity, which has recently seemed as impossible, is the entrance of Russia into the World Trade Organization (WTO). Russia has become its 156th member on 22nd of August 2012 (World Trade Organization, 2012). The main benefits of this cooperation will be permitted to foreign customer-related and industrial goods and hence to foreign companies. The advantage will generally consist of the reduction of import/entrance duties. The latter will make foreign goods more solicited than it used to be before the participation in WTO. It has been always the case that foreign goods, such as grocery, produced in Europe or somewhere else, are of scale more expensive than domestic ones.

Although the main preferences will be given to consumer goods, such as groceries, the foreign companies specialized in steel, chemical, power economy industries (Sinaeva, 2012).

In such a manner, according to the above-mentioned fact, Germany-based studied company C&F will get a good chance to stabilize its status on the foreign Russian market. In the author's opinion, it will happen due to gradual price descent of steel products. As a result, selling high-quality goods at the reasonable price will be a strong competitive advantage of the examined steel trading company.

Threats

First of all, as it has been already mentioned, Russia is ranked 142 in the Corruption Perception Index made by Transparency International (Transparency International, 2011). Indeed, the lack of transparency can be viewed as the threat. It means that company, which has decided to penetrate into the Russian market, can not totally predict all expenditures. In the case of this paper, two negative circumstances may occur due to this problem. The first one is the increase in number of days for the whole logistics movement from the manufacturer to final buyer of the steel product. The second one is the increase of the final logistics price. Indeed, the absence of transparency, which starts from the moment the cargo (steel products) arrives at the terminal, makes the logistics component not so effective.

Russian steel market has been described in the previous chapter and the obvious conclusion can be done. Russian steel industry is very competitive and it is quite difficult for foreign player to compete with local players. The latter are in general presented by vertically integrated producers, which have it's own production line and the majority of their functions are joined in the one enterprise.

As for the second threat, the new wave of world financial crisis can be viewed as an external restrictive factor. According to the experts' forecasts, the new wave of crisis

(which has started since middle of 2008) is coming soon. As the examined company is located in Europe (Hamburg, Germany), it has to be ready for potential decline in Eurozone (The Guardian, 2012).

The above-mentioned SWOT-analysis is quite important even in spite the fact it is not the core analysis of the paper. However, the presence of strong logistics network has been determined as one of the main strength of examined company. In such a manner, the further research will be directed towards the logistics component.

4.2. Astra Shipping Agency Ltd.

4.2.1 General information

«World Chartering Ltd» was established in 1994 and it's main business was chartering and management of river-sea vessels. Forwarding department was found in 1995. «Astra Shipping Agency» was based in 1995 and consisted of 100% equity of «World Chartering Ltd». «Astra Shipping Agency» provides vessels, which come to port of Saint-Petersburg, with top-class service. The company works 24 hours 7 days per week. Shipowners, charterers as well as operators of the vessels can be sure that experienced company's agents will try to find the best solution for customers in any complicated situations by close interaction with harbor master, port authorities, stevedores, masters of the vessels etc.
The motto of the company is: «Our core competence is the honesty and professionalism».
Each activity of the company is done according to Russian and international legislation and is also based on common seamanship. Business areas, such as chartering, agency and forwarding have licenses given by Ministry of Transport. Since the April 1998 the company successfully operates it's own private terminals: berth №27 in Trade port equipped with quay crane, which has capacity of 20 metric tons. The firm also owns the berth №50 in «Timber port» and «Salt» quay on the river Neva above the bridges. Private quays located above and below on the river guarantee smooth, safe and fast passage of passing ships with the type river-sea (L. Rozhdestvenskiy 2012, personal communication, 23 July).

4.2.2 Core competence of the company

The main business of the company is the organization of agency service in the Sea Port of Saint-Petersburg (including all private terminals) and particularly in River Port (including all zones on the river Neva). The firm provides all its clients with overall service package in the inland Russian water routes from Saint-Petersburg to Cherepovets, including all ports on both Ladozhskoe and Onegskoe lakes. According to the interview with Mr. Rozhdestvenskiy, who is both chief operating officer and internal supervisor of this paper, the annual quantity of the vessels served by Astra Shipping Agency has constantly grown since 1996 till 2008, when the World global crisis happened (L. Rozhdestvenskiy 2012, personal communication, 23 July). The below figure shows the trend in number of vessels, served by the company from the period 1996-2012 (till July).

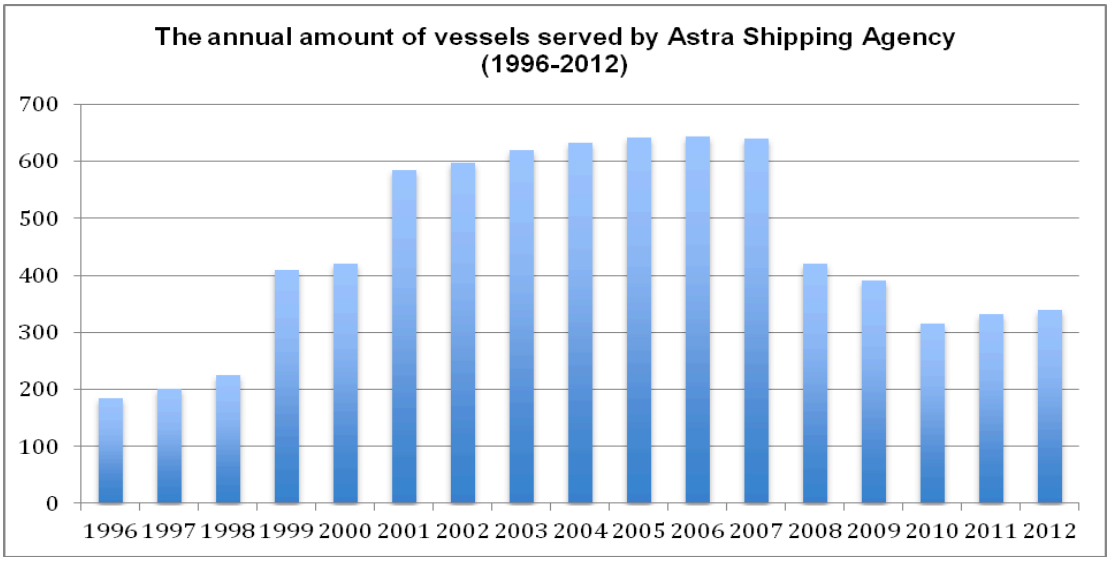

Diagram 2 The annual amount of vessels served by Astra Shipping Agency (1996-July 2012)

The specialization of the company can be divided into 5 main groups of businesses. They are:

- Chartering
- Management of vessels
- Forwarding
- Agency
- Consulting in the transport sphere

Chartering

The department provides clients with following services:

- Chartering of dry-cargo tonnage with the capacity from 1000 to 3000 metric tons;
- Chartering of reefers;
- Guarantee the places for part cargo on the liner basis
- Full operation of the vessels (including chartering, technical and financial support).

Because of the beneficial location of Saint-Petersburg on the juncture of river and sea routes, Astra Shipping Agency has gained significant experience in terms of cargo carriage organization from Russian river ports to the straight direction of sea ports by «river-sea» vessels' types as well as with cargo shiftment in the port of Saint-Petersburg on the sea ships.
There is an extensive database of different tonnage at the company's disposal:

- «river-sea» type of vessels with the deadweight of 1000 to 5000 tons;
- reefers vessels with the deadweight of 150 to 9000 tons;
- sea and ocean ships with the deadweight of 1500 tons to 50000 tons.

Management of vessels.

This activity implies operation of chartered vessels. Operations mean every day vessel's control and the guarantee of smooth services in both loading and discharging ports.

Basically, any shipping company's (particularly specialized in bulk transportation) routine activities are chartering and operations. The former is responsible for earning money by signing the contracts with charterers or searching the suitable offer on the spot market. The latter is concentrated on costs minimization. The core competence of operational department is to make each voyage as cheap as it is possible by port disbursement's price reduction or searching the most optimal place to bunker the vessel in terms of price or location (assuming minimum deviation).

At the present moment, the company disposes the fleet of 2 vessels, which means that nowadays it is not the core companies' sphere.

Forwarding

In this sphere Astra Shipping Agency follows the main goal of forwarder. The goal is the practical solutions to freight owners in terms of export-import cargo shiftments and delivery of cargo to the final customers. The firm experts' aim is to minimize customers expenses in case of logistics and quickly respond to the both consignors and consignees needs.
Forwarding department of the company is responsible for several functions:

- organization and development of optimal transport schemes for import and export cargoes;
- establishment of strong business partnership with large independent ship's surveyor companies;
- Coordinated cooperation between forwarding, chartering and agency departments of the firm;
- Consolidation of the shipload lots in the customs warehouses and optimization of cargo shiftment in the port of Saint-Petersburg, Kirov's factory and sea port of Viborg.
- Customs clearance of export-import cargoes
- «River-sea» type vessels' clearance in the Baltic customs, which go to inland water of Russia through Saint-Petersburg.

Organizing the shiftment or re-handling of a cargo, Astra Shipping Agency works directly with port authorities and shipowners in order to avoid any conflict situations, which can arise on the receipt of the cargo from the vessel and guarantee the safety of the carriage.
The loyal customers of the firm are:

- North-Western fleet;
- North river line;
- Toepfer International HmbH;
- Transocean S.A.
- Simonson Chartering
- Hernung Shipping
- KNT
- Baltic reefers ltd.

Agency

Agency has always been quite sustainable direction of business in the examined company. However, after 2008, when global financial crisis has started, the agency faced hardships due to very low number of incoming vessels (see the diagram 2).

The firm as an agency is represented in the port of Saint-Petersburg. However, being a gate of European goods, the port of Saint-Petersburg has a big number of agencies, which mean that the competition is tough.

Consulting in the transport sphere

This is relatively new focus area for the company, which is nowadays extensively developing. Consulting services cover all transport modes and the company is able to develop and offer the best solutions in the logistics in order to guarantee the optimization.

However, the above-mentioned package of services is nowadays completed by new company's focus – the delivery of steel products to Russian market, which is discussed in details below.

Steel delivery

One of the key company's fields of concern is the partnership with German company called Coutinho & Ferrostaal GmbH & Co. KG. The latter is one of the biggest independent steel trading companies in the world.
It was established in 2008 by the merger of three global players: German CCC Steel (Coutinho Caro & Co.), Mexican Groupo Villacero and German MAN Ferrostaal AG (as it has been already mentioned in the chapter concering C&F). The company's fields of concern vary from simple back-to-back trading transactions to transportation, financing, storage, door-to-door delivery and customs clearance. At the present moment company's main activities can be divided into 4 main groups:

- Trading;
- Logistic services;
- Financial services;
- Strategic services.

The first one is the core and basic business of the company, whereas the last three are value-added services.
Logistics is the bundle of services, which stimulate the trading activity of C&F by the means of door-to-door delivery of steel products. It is known, that steel manufacturers are located close to minefields of natural raw materials. However, the customers are all around the world. It means that logistic services play an important role in the sector and each company in the steel market should pay attention to this element.

4.3. The analysis of the partnership.

As it has been already mentioned in the research, the studied analysis will be done on a step-by-step basis. First of all, it should be determined whether the logistics component should be kept inside the company or outsourced to independent firm, such as for instance third-party logistics companies (3PL).

4.3.1 Internal logistics or outsourcing.

Logistics is an essential component in the economy and every business entity. For instance, in China logistics costs may account for 18 percent of GDP in 2012. Total logistics spend in U.S. was equal to 1.28$ trillion in 2011, which is 6.6% more comparing with 2010 (17% more above 2009) of GDP in 2007 (Burnson, 2012). And this can be calculated as 8.5% of the U.S. GDP. The above-mentioned figures prove the significance of logistics in world economy.
However, it is still a question whether to outsource the logistics or to keep the logistics department inside the company.
Internal logistics implies the existence of logistics department within the firm. Since companies have different functions such as financial and marketing, they might also have logistics function. Taking into account the steel industry, whose main players are basically large vertically integrated companies, most of them have in-house logistics department. Because of the fact logistics is complicated process, some enterprises have opened the logistics departments as subsidiary companies. For instance, Russian steel giant EVRAZ has created the firm called «EVRAZ trans», whereas it's local competitor Mechel has established «Mechel-Trans». Such non-core assets had been organized to perform obligations of core business and were increased later to self-sufficient enterprises with own client's portfolio. As the result, nowadays the logistics subsidiary EVRAZ trans can be sold to the Russian «First Cargo Company», which specializes in railway transportation. According to the experts, EVRAZ trans may cost 9 billions of roubles (Vedomosti, 2012).
Further to above-mentioned, Russian ore mining and smelting giant called Metalloinvest has had in-house logistics department as well, consisted of charterers who searched suitable vessels on the spot market. However, they have re-organized the logistics by outsourcing the latter to independent company, called Mainline Shipping Company. This case will be briefly described lower.
During the composition of this paper, the author has met with Mr. Alexey Semin, chartering director of Mainline Shipping Company, which was based in Athens in 2008 and specializes in door-to-door logistics for various commodities. For the last few years, the company has been the important part of Russian steel giant, called Metalloinvest (A. Semin 2012, personal communication, 26 July). The latter is one of the biggest private companies in Russia, which focuses on the ore mining and smelting. According to the last available annual financial report, Metalloinvest has a consolidated revenue about 9,9 billion US dollars and the net profit 1,4 billion US dollars (Metalloinvest, 2011). Before Mainline Shipping Company made an agreement with Metalloinvest to arrange maritime logistics, the latter had it's own department, which chartered the vessels on the spot market. However, the shipping market went down dramatically after the crisis in 2008 and still has not recovered yet. The management of Metalloinvest has realized that current internal logistics department is not able to cope with existing situation because of lack of shipping knowledge. Moreover, the employees were not highly motivated and were not interested in minimizing the logistics costs. And the board of directors decided to

outsource the maritime logistics to independent shipping company, which has had definitely much more knowledge and experience concerning maritime carriage of goods. According to their website, the firm «uses an umbrella of subsidiaries which are able to offer a full logistics portfolio including sea freight, railway, transshipment, agency, warehousing and distribution. As a result, having few own vessels and being the professional player on the market, Mainline Shipping Company has helped Metalloinvest to minimize maritime transportation costs (A. Semin 2012, personal communication, 26 July).

Because of worldwide trend in globalization, a lot of companies have decided to outsource logistics function to Third-Party Logistics (3PL) companies (such as above-mentioned Mainline Shipping Company) and in such a manner to concentrate more on the core activities. 3PL companies are external supplier that performs all or part of the company's logistics function, such as transportation, storage, distribution and financial services etc. (Guardian, 2012). Companies have realized that some secondary but important firm's functions might be effectively outsourced and this has pushed 3PL companies as a full segment of economy. Such companies work as intermediaries between manufacturers or suppliers (the purchaser of the 3PL services) and customers of the final products. The important reason to outsource logistics functions is the necessity to cut the amount of own warehouses, inventories and vehicles and as a result the costs, which are occurred by their usage. Indeed, the partnership with 3PL companies can bring a lot of benefits, such as:

- Concentration on the key competence – logistics services – rather than vertically integrated organizations, which have to spread their competence;
- Flexibility, which gives possibilities to react quickly to unstable business environment;
- Better knowledge of the market. Availability of resources, which are not available to manufacturer (data, intermediaries, brokers etc.), access to best products, services and technologies.
- The lack of necessity to invest a lot in infrastructure and physical supplements (vehicles);
- Spread the risk and responsibility;
- Reduction of operating costs;
- Shift from fixed costs to variable costs.

However, the applicability of 3PL company as a provider of outsourced logistics, should be analyzed in terms of the size of a business entity. Although the main disadvantage of 3PL is the remote control of logistics process, in author's opinion, the total benefits overweight the drawback and hence, especially in the era of globalization, delegation of authorities in case of outsourced logistics becomes preferable in case of vertically integrated companies of the steel industry.

In order to demostate the most typical 3PL arrangement, the author of this paper has composed the diagram 3 in accordance with the study book «Supply Chain Management» by Sunil Chopra and Peter Meindl.

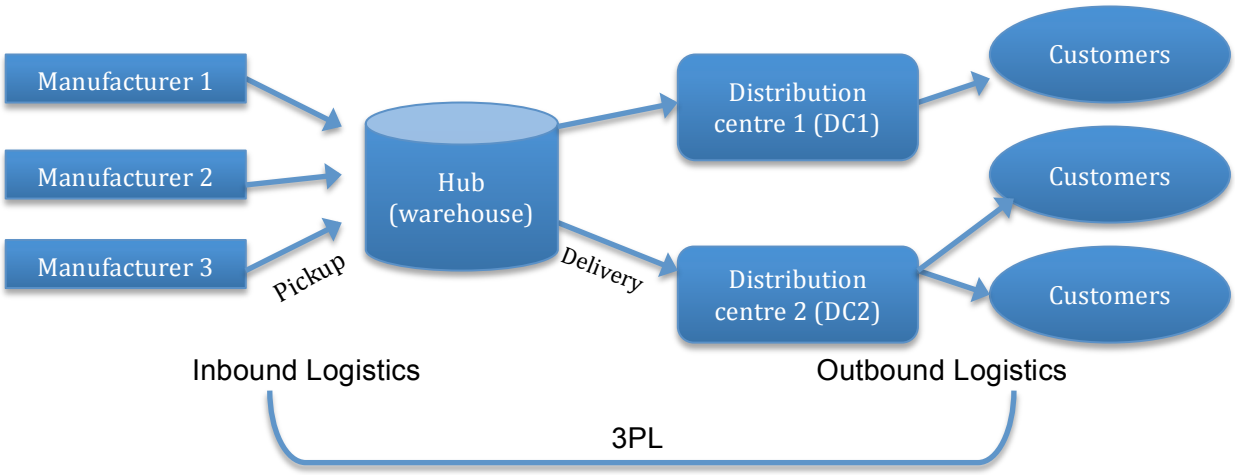

Diagram 3 Typical 3PL arrangement
(Chopra & Meindl, 2010)

According to the above-mentioned trends and partnership's history, the intermediate conclusion can be done. The current downturn shipping market demands highly professional logistics team, which has to be at least able to maintain the costs or even make a breakeven. That is why the author of this paper is assured that an each large company has to make an internal analysis and weigh all pro's and contra's. On the one hand, the manufacturer can less effectively control an outsourced logistics. And the manufacturer has to take a risk of non-performance of obligations. On the other hand, total benefits can outweigh the risks and as the result manufacturer can be able to perform better than it's main competitors.
In addition, such partnership can be viewed from the other angle. Nowadays shipping companies are under the high pressure due to the market conditions. Before the global crisis shipping companies gained a lot because of sufficient demand. Manufacturers gained traction and the volume of goods to transport were in excess. Shipping companies have been taken loans and built the vessels, which earned much more than they cost. As a result, by 2008 there were surplus of supply and lack of demand. Ships made losses and a lot of shipping companies were almost unemployed. After one and a half year of experience in Dutch shipping company Onego Shipping b.v., the author can confirm the disproportionate situation in the shipping, particularly in the break bulk niche. A lot of companies in the sector are trying to establish strong partnerships with big manufacturers, such as Arcelor Mittal in order to guarantee capacity utilization.

Based on the above-mentioned intermediate conclusion, as for the studied partnership between Coutinho & Ferrostaal and Astra Shipping Agency, the latter appears for the 3PL company. In other words, it means that steel trading company has decided to outsource its logistics function to independent firm. In author's opinion, this decision was done, because of some Russian market's peculiarities. First of all, Russia is still very corrupt country. As it has been already mentioned before, Russia is ranked as highly corrupted country by Transparency International

Organization. with the score 2.4 (from 0 to 10, where 0 means that a country is perceived as highly corrupt and 10 means that a country is perceived as very clean) (Transparency International, 2012). It means that foreign companies can waste a lot of money if they are not familiar with «invisible rules». In addition, the current situation is determined by the modern economy. The financial crunch has led to dramatic circumstances in different industries. The steel sector, which is fairly competitive, forces players to concentrate on the core activity. Although financial and sales departments become more important nowadays, logistics should not be underestimated as well. The key goal of modern logistics is to minimize the costs and that is how the effective logistics have to look nowadays. Just in-time delivery starts to play a support role. As it has been told during Maersk lecture series in the Center for Maritime Economics and Logistics in Erasmus University Rotterdam, at the present time Maersk's vessels rarely appears in ports in accordance with both Lines and Master's initial itinerary (Center for Maritime Economics and Logistics, 2012).

In such a manner, in order to comply with the requirements of existent situation, Coutinho & Ferrostaal has outsourced the logistics in case of supply in Russia. Astra Shipping Agency as the 3PL company renders full service and provides the studied steel trader with transportation, transshipment, loading and discharging, warehousing, customs clearance and final delivery of the variety of steel products, starting from raw materials (pig iron, slabs, blooms, billets) to pipes, long (reinforcing bars) and flat (hot rolled plates) products.
In author's opinion, such strategic decision is to a large extent determined by the core company. C&F does not have own production line, as for example it's local rivals, such as Mechel or Severstal. For traders, it is preferable to have outsourced logistics, because first of all, their total revenue is lower than steel producers giants such as Arcelor Mittal or Baosteel, whereas outsourcing allows to minimize costs.

In order to analyze the door-to-door delivery of steel products from manufacturers to final customers, the author has decided to divide the analysis into sub steps. First of all, the maritime component of delivery will be determined from local manufacturer to C&F hub in Hamburg as well as from port of Hamburg to port of Saint-Petersburg. Secondly, the author is going to designate the process of transshipment and discharging. In the end, the final delivery to the end customers will be analyzed.

4.3.2 The typical scheme of door-to-door logistics

The typical cooperation between C&F and Astra Shipping Agency looks as following:

• The firm "Coutinho & Ferrostaal" does the order for batch production metal at plant and makes its payment.
• By the time of readiness of the order of "Astra Shipping Agency" submits empty the container under loading to plant on Taiwan.
• At plant is performed loading the metal in containers which on containerships are delivered to the port.
• Metal passes the customs clearance and then loading in port on a feeder vessel. The feeder vessel delivers containers to the Singapore port where the overload of containers is performed from a feeder vessel on an ocean vessel.
• On an ocean vessel cargo follows to the Hamburg port where the overload on a feeder vessel which delivers cargo is again performed to St. Petersburg.
• In the seaport of St. Petersburg the containers unloaded from a feeder vessel, arrive on WTS (a warehouse of temporary storage) where again pass a customs clearance.
• With WTS containers on containerships deliver to a warehouse where they discharged, cargo remains in a warehouse, and empty containers return to the port.
• In a warehouse metal is sorted by weight and color. In process of receipt of orders of packaging of the necessary weight and color on trucks or by rail are delivered to the buyer.
All course of carriage of cargo from manufacturing plant to a warehouse of firm takes about 38-45 days, from them the 35th transportation and from 3 to 10 days the customs clearance on WTS in the seaport of St. Petersburg.

4.3.3 Warehousing

The integrated approach in logistics assumes through management of the streams passing through all links of logistic structure. However it doesn't exclude the analysis and research of separate components of links and elements. Thus it is necessary to fulfill the following requirements:

• all elements / links are considered in interrelation'
• all elements / links make uniform logistic structure, and therefore their work is directed on achievement of the general criterion function of all system
• the local purposes and problems of functioning of elements / links will be coordinated with a common goal and problems of logistic structure
• the analysis and researches of any element / link of logistic structure are carried out on the basis of a system approach
• modeling of elements / links of logistic structure is carried out on the same principles, as system as a whole
• optimization of all system is primary task, and only it sets conditions of sub optimization of elements / links making it.
The main conditions of effective functioning of a warehouse as element / link it is possible to consider as the following from the general principles of design last, the following:
• the warehouse is considered not separately, and as an element logistic structure. Overall performance of a warehouse answers effective functioning of logistic

structure as a whole.
• interactions and relationship of a warehouse as at level of all logistic structure, and in the subject of logistic structure are considered
• technical and technological possibilities of movement of the material stream passing through a warehouse, with external transport, and also direct suppliers and buyers coordinate
• decrease in expenses for warehouse processing of cargoes doesn't involve decrease in a degree of service of clients
• the complex of the logistic services provided by warehouses, answers policy of servicing in firm
• technical and technological solutions in a warehouse start with logistic need and economic feasibility
• the automated control system for information streams, irrespective of level of technical equipment of the warehouse is applied
• the uniform approach to flow of documents between all participants of logistic structure is provided
• shaped coding of cargo at the enterprises manufacturers takes root.

Warehouses – a component of the integrated logistic structure – at the same time are financially - technical base of the main participants of this system. The warehouse plays a role of an element of a material stream as, providing implementation of logistic operations logistic structure, it isn't subject to further decomposition within logistic structure objectives.
In all warehouses, irrespective of their place in logistic structure, there is a transformation of a material stream in the sizes and structure of entering and leaving lots of products on time of receipt, shipment etc.
Thus, the warehouse can be considered as the main converter of a material stream of logistic structure from suppliers of raw materials and materials before delivery of finished goods to the end user. Activity of a warehouse is directed on logistic structure optimization.

The modern large warehouse (for example, a warehouse of tare and piece cargoes) represents a difficult technical construction which consists of a set of various subsystems (a complex of buildings, set of processed cargoes, system of information support etc.) and the elements of a certain structure united for performance of concrete functions of transformation of material streams.

Advantages of warehousing

In logistic structure it is possible to consider as the main reasons for use of warehouses the following:
• coordination and supply and demand alignment in supply and distribution (at the expense of creation of insurance and seasonal stocks of production)
• decrease in logistic expenses at transportation (at the expense of formation of optimum parties of delivery)
• maximum satisfaction of a consumer demand
• creation of conditions for active strategy of sales
• expansion of geography of the market
• uninterrupted supply of end users and the organization at them commodity stocks

The main functions of a warehouse in logistic structure:

Warehouses within logistic structure carry out the following main functions:

1. Level intensity of material streams according to demand of the consumer.
(i.e. change of volume of processed cargo in unit of time).If to consider logistic structure as a whole, that become the main dictating link the end user.
2. Transform the range of an in-door warehousing stream according to the order of the client.
This function gains special value in distributive logistics where the trading range includes the huge inventory of the various producers differing on functions to the size, to a form,etc.
3. Provide the concentration and storage of stocks.
Concentration and storage of stocks allows to level a difference between release of production and its consumption and to carry out process production and supply on the basis of created commodity stocks.
4. Smoothing the asynchrony of the production process.
It is a question of alignment of the asynchronous moments between technological and organizational processes, and also between separate working operations of production.
5. Combine shipment parties.
For reduction of transportation costs the warehouse can carry out function of consolidation of small parties of cargoes for several clients to a full load of a vehicle.
6. Renders services.
The warehouse actively participates in implementation of policy of logistic service of the enterprises.
Among the main services of a warehouse it is possible to allocate four groups:

- Material services
- Organizationally – commercial services
- Warehouse services
- Transport-forwarding services

«Rent or buy» analysis

During the internship in Astra Shipping Agency as part of Center for Maritime Economics and Logistics programme, the author has made the financial analysis, regarding the practicability of own warehouse. One of the problem the author of the thesis was responsible for was: What is more beneficial for the logistics optimization in our case – to rent the warehouse (the current situation) or to invest in the new facility in order to minimize operational costs in the future by avoidance of such expences, as rental charges.
However, it should be said as an assumption, that some preliminary works had been already done before, so the main problem was to compare the figures and give the recommendations. In order to get the results, present value analysis has been done.

Both annual and months calculations regarding which project is preferable are presented in Appendix 6 and 7.

It is seen that both projects compete with each other. However, it is seen from the tables in appendices, that the construction of the own warehouse will decrease the fixed costs of the examined company from the very beginning, because building costs are lower than the annual rental costs.

PV criteria of the «construction project» is significantly higher than PV criteria of the «rental project» and hence, the former is more profitable than the latter. After the completion of construction phase, expoitation costs of building and equipment as well as lease land costs and others in total are lower than rental costs.

The profit from the capital economy is generated in the beginning of 3rd year from the beginning of construction stage. All above-mentioned shows the viability of «construction project», which is really economically beneficial one.

This analysis has been already shown by the author to both representatives – Mr. Waleri Snatkin and Mr. Leonid Rozhdestvenskiy. The author was advised that top management of both companies would discuss this problem.

4.3.4. Sea port of Saint-Petersburg

Saint-Petersburg is the biggest transport and industrial center, which can be named as the marine capital of Russia. It is named as the European gateway of Russia and the most significant connection element between the East and the West. The port of Saint-Petersburg is located on the North-West of Russia at the following positioning data: 59°56' NL, 30°18' EL (JSC "Sea port of Saint-Petersburg", 2012).

At the present moment the port is managed by JSC «Sea port of Saint-Petersburg»
The latter is one of the largest stevedore companies rendering services in an overload and registration of the foreign trade cargoes within the water area of the «Big port of St. Petersburg».
Specific weight of holding makes about a quarter of all volume of an overload of the foreign trade cargoes among seaports of our country.
The company continuously increases goods turnover volume, develops and modernizes internal structure.

JSC Seaport St. Petersburg possesses sufficient capacities for processing more than 40 million tons of cargoes a year and has possibility to form the territory for further development using the factor of a shallow part of the “Nevskaya guba”.

During recent years, JSC Sea port of Saint-Petersburg fulfilled radical reorganization as a result of which the independent stevedore companies were created on the basis of the former cargo areas of port.
Annual cargo turnover of port in 2005 reached 37,6 million tons of cargoes, and ships turnover exceeded 20 thousand ships (JSC "Sea port of Saint-Petersburg", 2012). The sea trading port is equipped with the modern reloading equipment.

In the sea trading port the total area of covered warehouses makes 155,8 thousand sq.m, the open warehouse spaces is 551,5 thousand sq.m. In the customs relation warehouses of JSC sea port of Saint-Petersburg are founded as warehouses of temporary storage of the closed type.

Specific weight of sea port in total amount of an overload of the foreign trade cargoes the Russian seaports (in 2005r. - 203,6 million tons) make more than 10% (JSC "Sea port of Saint-Petersburg", 2012).

In the general goods turnover of the Seaport of Petersburg, the largest transport center of the Northwest of Russia, the Seaport processes more than a half of all foreign trade cargoes.
As fot the main port's competitors, they are the ports of Russia ("Murmansk Commercial Seaport", «Sea trading port Kaliningrad», «Vysotsky sea trading port»), Baltic (Ventspils, Tallinn) and Finland (Kotka, Helsinki).

Port development.

Change of structure of cargo traffics, increase of a role of intermodal transportations create the need of development of capacities of port on the basis of reconstruction existing and the need of constructions of new modern reloading complexes.

The analysis of these changes has defined the main directions of perspective development of the sea port of St. Petersburg.

The project of development of an association on transfer of oil products is carried out by JSC Petersburg Oil Terminal and includes an alluvium in the area of 200 thousand sq.m, installation of tanks in total volume of 40 thousand tons and reconstruction mooring No. 112.

Besides development of berthing and reloading capacities the port dynamically develops capacity of the automobile and railway entrances. Carrying out reconstruction of the mooring No. 64 with increase of its length, and also lengthening of deep-water moorings No. 42 and 43 for simultaneous processing of two heavy-tonnage vessels is planned.
The Sea channel is planned to be expanded to 60 meters and deepened to 13,5 meters for ensuring conducting to the port of heavy-tonnage passenger and cargo vessels.
The volume of processing of export-import cargoes in borders of the Seaport of St. Petersburg is planned to be increased up to 60 million t by 2014.
For this purpose, besides modernization of existing port capacities, construction of four new ports and technological complexes is planned.
These four new ports are situated in Gorskaya, Kotlin's island, Bronka and Lomonosov.

In order to examine the sea port of Saint-Petersburg and it's main peculiarities, the author has decided to create the PEST-analysis of the North-Western Region of Russia in order to understand the almost monopolistic power of the port, which is nowadays considered as the main gate to Russia.

PEST-analysis of North-Western Region of Russia.

PEST analysis is the tool intended for identification of policy, economy, society and technology aspects of environment which can affect to region strategy (Kotler, 2009).

From a set of the factors characterizing influence of environment on development of the region, PEST analysis allocates 4 main groups, i.e. by means of this tool are investigated political, economic, sociocultural and technological aspect of environment of the region (Downey, 2007).

Environmental analysis

The main political question is a question of the power. The central power regulates the mechanism of the address of money in the region, investments, receiving the main resources in the region.

The analysis of economic aspect of environment of the region allows to understand, how the main economic resources at state level are formed and distributed. For the majority of regions it is the most important general condition of development.
Social component of environment it is most connected with the analysis of a standard of living of the population, culture, a demographic situation in the region. By it its special value, as a rule, is defined in the analysis and planning of possibilities in strategic prospect.
Value of technology factor of environment consists in the analysis of the technologies applied in the region, allowing to observe standards and supporting acceptable level of profitability of the enterprises functioning in the region. Recently standards of ecologically focused business management, the ISO-14000 series being a regulator of the economic relations between the enterprises and branches, both on internal, and in the international markets are most actively developed.

Table 9 PEST-analysis of North-Western Russia

Policy	**Economy**
• Election of the president of the Russian Federation in 2012. • Legislation change • Elections to the Duma of the Russian Federation • The state influence in the region • Regulators and norms • Elections of governors (mayor) and local legislature • Environmental problems	• Economic situation and tendencies • Change of course of currencies • Dynamics of a rate of refinancing • Change of tariff rates • Inflation • State regulation of development of the region • Investment climate in branch • Customs tariffs
Society	**Technology**
• Demographic changes • Accounting of an ecological factor • Change of a standard of living • Change in base values • Change of educational system • Ethnic and religious factors • Consumer representations • Support of the needy • Main events and influence factors • Change in level and way of life	• Development of competitive technologies • Financing of researches • Information and communications • Significant tendencies in the field of research and development • State technological policy • Investment support in small and medium-sized enterprises • Improvement of system of protection of intellectual property • Exchange of experience with foreign partners

Composed by the author (2012)

Table PEST analysis of the tendencies having essential value for forecasting of development of the region.

Development tendencies in the Russian Federation in 2009-2012 create the following possibilities for development of the Northwest economic region:
In the policy sphere:
Partial change of the government, election of the president in 2012, and also administrative reforms of government rather strongly influence nature of political management, and also allow to improve fight against corruption methods in the government and national economy. In the whole, after the change of structure of the Government it is possible to assume that Russia will avoid political shocks that should well affect a condition of the economic, social and political sphere.

Political analysis

Due to the future election of the president of the Russian Federation, the government is possible change partial or almost complete.

It creates uncertainty of future political policy of the country that in aggregate with unstable state of the economy and the ambiguous relation of foreign countries to policy of the Russian Federation can be at the bottom of unforeseen consequences and to deterioration of stability of political position of the Russian Federation.
In the economy sphere:
The real tendency of strengthening of the rouble exchange rate, arisen in connection with imperfection of the currency legislation, can lead to decrease in competitiveness, both on external, and on internal the markets.
In the social sphere:
Natural decline in population, which is observed in the Northwest area, and also a high unemployment rate in some areas, says about saturation of the market of labor that can negatively affect a population standard of living; if present rate of inflation remains, there will be preconditions for further decrease in a standard of living of the population.
Besides, in connection with the collisions which have become frequent recently on the racial soil and because in the territory of this economic region representatives of a set of various nationalities live preconditions for formation of negative social climate in the region are created.
In the technological sphere:
Reduction observed throughout the last decade budgetary and the knowledge-intensive development can lead science funding to further degradation of separate branches of the enterprises of various industries that further can lead to deepening of an economic crisis, stagnation and even an economy depression because of loss of competitiveness of the Russian goods on internal and especially on external the markets.

Economic analysis

The Northwest economic region should become priority in the specified sense as the international and interregional economic cooperation within the European North gives to Russia exclusive chance for integration into the European and world economy. The northwest area directly connects the most occupied and economically developed regions of Russia with the countries of the European Union. It historically is base of development of all Arctic coast of Russia which economic value increases every year.
Areas of the Northwest economic region with various degree of success meet an economic crisis. The last two years, industrial production grew up in all regions, but growth of agricultural production is expressed not so unequivocally and everywhere, and the real monetary income of the population in the majority of regions didn't reach level of pre-crisis 1997, not to mention prereform level.
Owing to the geographical position, the Northwest is obviously more attractive to investors, especially foreign that proves to be true its raised share in total amount of domestic and foreign investments in comparison with the major socio-economic indexes.
The low potential and low risk are distinctive feature of areas of the Northwest except St. Petersburg (so, the Novgorod region by results of the last rating was included into number of ten least brave regions of Russia.).
Therefore the main objective here is building of their investment potential, possibilities and places of involvement of investors, and also their subsequent resource providing (the territory, infrastructure, a manpower).

As the especially, foreign investors consider favorable conditions near the Northwest. Not casually, St. Petersburg is one of leaders in Russia on attraction of direct foreign investments during a number of years. On total amount of direct foreign investments per capita in the area the Leningradskaya, Novgorodskaya areas and St. Petersburg are allocated. The intensive activity of foreign investors stirs up activity and domestic. Such tendencies in investment activity create a good reserve for new economic start of the Northwest economic region.

Social analysis

Natural decline in population which is observed in Northwest economic the area, and also a high unemployment rate in its some areas, say about saturation of the market of labor that can negatively affect a population standard of living. Under condition of an exit of economy of some areas of this area from crisis that should be promoted by the regional policy which is carried out by federal authorities, and also preservations of present rates of a gain of VRP in rather safe areas, the increase in a standard of living of the population thanks to growth of salaries and the budgetary payments to the population is possible.
Besides, the social policy which is carried out by the federal government will allow to improve the provision of the majority of the population at the expense of subsidies and grants.

Technological analysis

As the Russian Federation traditionally is one of world leaders in the field of scientific and technical development and at the same time stably takes the last positions on their introduction in production, under condition of carrying out the correct federal policy in this area, improvement of investment policy and the taxation, basic changes in economy thanks to competitiveness increase, both on internal, and on external the markets are possible.

The tendency of development in the Russian Federation in 2009-2012 create the following threats for development of the Northwest economic region.

5 Summary and Conclusions.

In the end of this paper, the author would like to emphasize the main findings, which have been received during the composition of the thesis: «Analysis of door-to-door logistics in the steel industry».

During the composition of this thesis, the author has analyzed all components of door-to-door logistics in the steel industry in order to answer the question: how to optimize the door-to-door delivery of steel products. As for the basis of the paper, the partnership of Coutinho & Ferrostaal and Astra Shipping Agency has been taken. The practicability of this cooperation's research is stipulated by several factors:

- The possibility for the author to have an internship and possible future job in Astra Shipping Agency;
- The complexity of Russian market as an objective market for geographical expansion;
- Compensation of academic knowledge with practical experience, gained during the internship.

Russian market as a studied one is fairly complicated and it is stipulated mainly by the severe competition. Russian metal-makers are able to offer relatively cheap product, which is indeed partly satisfies the existent demand. However, before 2002 (the year, when the described partnership were established) the Russian market analysis has been done by C&F and especially by Mr. Snatkin, who is nowadays can be named as the main company's person concerning Russian market's operations. Marketing research was done in terms of potential clients' visits and it showed the presence of sufficient demand on the side of Russian customers. The products, which can be offered by C&F are not competitive towards Russian manufacturers in terms of price. The former are more expensive. However, they are more competitive in case of quality. The German trader can offer French, Taiwan, Korean steel products from such producers as Arcelor Mittal, Baosteel etc., which is more expensive but at the same time is more qualitative. As a result, goods are in-demand on local Russian market.
However, to have only demand is not sufficient. There should be an effective business model, which includes among other things – logistics. After the world financial crisis, which began in the second quarter of 2008, the majority of the companies in the steel market started to concentrate the attention on cost minimization instead of profit maximization. The former nowadays seems more possible. However, logistics has always been quite an expensive part of any company due to its complexity. The latter consists of both physical (vehicles, cargo itself, cargo documents, vessels, trains etc.) and nonmaterial (information) movements. Nevertheless, the effectiveness can be reached and it is to a large extent depends on the firm, which provides the logistics services.

It can be said, that studied model of cooperation between steel trader and 3PL company is quite typical even in the global context. However, after the moment all in-depth interviews were done and analyzed, the author of this paper has been able to conclude about certain complexity of the studied logistics design. Such multiplicity is determined by specificity of Russian market. Despite the positive dynamic of Russian GDP, which demonstrated the growth by 4,9% in first quarter of 2012, the country is still highly corrupt and is ranked 142 in the Corruption Perception Index by

Transparency International (Seputyte, 2012) (Transparency International, 2011). In the studied partnership the corruption is observed in Federal State Institution «The large port of Saint-Petersburg». The biggest hardship to import foreign container is met during customs clearance. First of all, total time to deliver container from manufacturer to the final customer becomes longer due to bureaucracy procrastination. Moreover, extra expenditures may occur in the form of bribes etc.

One of the most important finding of this paper is the gradual switch from containerization to break-bulk. Such sharp change is determined by current world economy, which has been suffered a lot since second quarter of 2008. However, steel producers have already recovered and according to the forecast made by «Deutche Bank Research» there will be annual growth of 3,5% until 2020 to 2,1 billion tonnes (Deutsche Bank Research, 2008). In comparison with global steel industry, shipping industry and particularly container lines are under high pressure nowadays. It is stipulated by several factors, such as for instance high bunker prices. In addition, Standard & Poor's Ratings Services (S&P) decreased CMA CGM credit rating from «B minus» to «CCC plus», because of liquidity position deteriorated in the first quarter of 2012. French shipping line CMA CGM posted a first-quarter loss of $248 millions (Leach, 2012). In such a manner, container lines inform nowadays about increase in freight rates. The chief executive of Ports of Auckland Tony Gibson as well as Maersk country manager in New Zealand have both confirmed that global shipping companies will charge freight rates in order to minimize losses they are facing (Fox, 2012). This trend sounds dramatically in the modern steel transportation market. According to Mr. Rozhdestvenskiy, at the present time the shipping lines «quarrel with one's bread and butter» (L. Rozhdestvenskiy, personal communication, July 19). In other words, by increasing the freight rates, shipping lines compel steel producers or traders to search for a qualitatively new possibility in cost minimization.

As it has been already mentioned, the optimization of the door-to-door logistics had been made by division the whole network into small parts, which were later examined and analyzed. One of such component was the warehouse of Coutinho & Ferrostaal, which is located in Saint-Petersburg (pictures can be found in appendices). During the internship, one of the tasks given to the author was to make the financial analysis and in such a manner to answer the question: what is more beneficial in terms of logistics – to take on lease the warehouse or to build the own one? As for the short conclusion, the comparison analysis has demonstrated the expediency of the own warehouse. Despite such a high-rise task, it helps to determine one of the possible step in overall logistics cost minimization.

As a result of this paper, the qualitative analysis of door-to-door logistics in the steel industry has been done. It has shown and in-depth interviews have confirmed it, that the current organization of logistics processes is an effective one, because it firstly allows C&F to minimize costs and hence to be competitive on the foreign market, such as Russian and secondly it allows Astra Shipping Agency to stay the course. However, the above-mentioned changes can be imbedded in order to be more effective.

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Appendices

Appendix 1 The respondents' contact details.

1. Mr. Waleri Snatkin
   Company's name: Coutinho & Ferrostaal GmbH;
   Type of activity: Steel trading company;
   Position: Regional General Manager;
   Telephone: +49 40 380 22 7527;
   E-mail: w.snatkin@coutinhoferrostaal.com

2. Mr. Leonid Rozhdestvenskiy
   Company's name: Astra Shipping Agency ltd.;
   Type of activity: Third-party logistics company (3PL);
   Position: General manager;
   Telephone: +7 (812) 635 50 01

3. Mr. Alexey Semin
   Company's name: Mainline Shipping Company
   Position: Chartering director
   Telephone: +30 210 9689860
   E-mail: chartering@mainline.gr

4. Mr. Yuri Leontiev
   Company's name: Onego Shipping & Chartering b.v.
   Position: Chartering manager
   Telephone: +31 10 506 5 667
   E-mail: chart@onego.nl

Appendix 2 Questions, prepared for the in-depth interviews.
The questions prepared to personal in-depth interview with Mr. Waleri Snatkin

1. When did the partnership between the two companies start?

2. What was the main drawbacks during the first year of the partnership?

3. Do you have an internal logistics department in the company and (if yes) what are the main functions of this department?

4. How did you take the decision to penetrate the Russian market and what was the main marketing techniques in order to investigate the existent demand?

5. What are the main differences between CIF (Cost, Insurance, Freight) and FOB (Free on board) deals, which can be settled between C&F and ASA?

6. What is the proportion of CIF and FOB deals?

7. How do you determine which manufacturer to use?

8. How does the economics conditions influence the cooperation between your companies and what are the main decisions, which can be made in order to adjust to constantly changing market conditions?

9. Which steel products are nowadays in-demand?

10. How do you estimate the Russian market in terms of corruption?

11. What are the main expenditures, which are directed towards logistics component?

12. What do you think, is it possible that your partnership's strategy will be copied?

13. Do you have any plan concerning the warehouse? Do you think it is possible that your company is going to purchase its own warehouse in Saint-Petersburg or the company's priority is nowadays to minimize costs?

The questions prepared to personal in-depth interview with Mr. Leonid Rozhdestvenskiy

1. What are the main threats, which can come from the main local rivals, such as JSC «Severstal» or JSC «NLMK»?

2. What is your opinion concerning further improvements, which can be done in terms of logistics component?

3. What are the main steps, which cargo has to follow in order to reach final customers?

4. Can you estimate the level of corruption in the sea port of Saint-Petersburg and what are the main obstacles you face in this element of logistics network?

5. What are the total logistics costs in the price of final metric ton of steel?

6. What are the main trends in modern steel logistics?

7. Can you estimate the share of steel logistics in the total portfolio of your company's deals?

8. What is the most prevalent way to deliver final and semi-final goods on the last transportation leg directly to customer's «door»?

The questions prepared to Mr. Alexey Semin (Mainline Shipping Company, Athens, Greece) and Mr. Yuri Leontiev (Onego Shipping & Chartering b.v., Rotterdam, Netherlands).

1. According to your own opinion, what are the main trends in the door-to-door logistics of the steel products?

2. How can you estimate your activity on the global logistics market?

3. How do you operate in comparison to your main rivals?

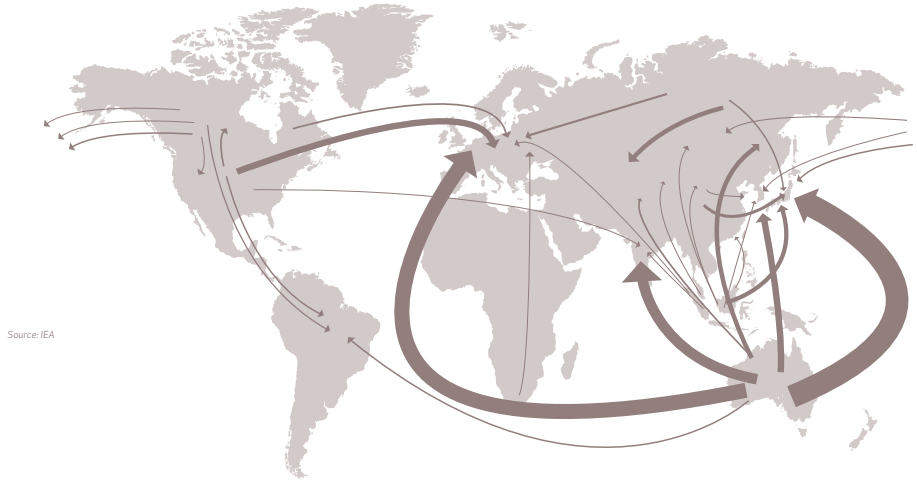
4. To Mr. Alexey Semin: What are your main advantages, which finally have attracted the vertically integrated steel giant JSC «Metalloinvest» and forces the latter to outsource the world logistics?

5. In your own opinion, what are the main factors, which can influence the discussed business in the near future?

Appendix 3. Pictures of warehouse, rented by C&F

Appendix 4 World trade routes of steel raw materials (iron ore and coal) and final / semi-final steel products.

World trade routes of steel raw materials (iron ore and coal)



Source: IEA

World trade routes of final / semi-final steel products

Source: ISSB

Appendix 5 The key steel industry's figures

Global steel market volume: thousand metric ton, 2006-2010

Year	Thousand metric ton	% Growth
2006	1'188'762.0	-
2007	1'281'486.0	7,8%
2008	1'267'127.0	(1,1%)
2009	1'178'267.0	(7.0%)
2010	1'353'299.6	14,9%
2006-2010		3,3%

Datamonitor 2011

Global steel market segmentation: % share, by value, 2010

Category	% Share
Asia-Pacific	64,6
Europe	21,7
Americas	12,1
Middle East & Africa	1,6
Total	100

Datamonitor 2011

Global steel market share: % share, by volume, 2010

Company	% share
Arcelor Mittal	6,7
Baosteel	2,7
Nippon Steel	2,7
POSCO	2,6
Other	85,3
Total	100

Datamonitor 2011

Appendix 6 Investment in construction and rental costs (in roubles) for the first year (in months)

Month	1	2	3	4	5	6	7	8	9	10	11	12
Project development	-145000											
Lease of land		-171 000	-171 000	-171 000	-171 000	-171 000	-171 000	-171 000	-171 000	-171 000	-171 000	-171 000
Purchase of metal structure		-1 624 000	-1 624 000									
Concrete				-324 800								
Building installation				-812 000								
Equipment				-1 004 850	-15 000	-15 000	-15 000	-15 000	-15 000	-15 000	-15 000	-15 000
Equipment Installation					-150 728							
Total	-145 000	-1 795 000	-1 795 000	-2 312 650	-336 728	-186 000	-186 000	-186 000	-186 000	-186 000	-186 000	-186 000
Discount factor	1	0,983	0,966	0,950	0,933	0,917	0,902	0,886	0,871	0,856	0,842	0,827
Discounted cash flow	-145000	-1764329	-1734183	-2196117	-314296	-170643	-167727	-164862	-162045	-159276	-156554	-153879
Aggregated Discounted cash flow	-145000	-1 909 329	-3 643 512	-5 839 629	-6 153 926	-6 324 569	-6 492 296	-6 657 158	-6 819 203	-6 978 478	-7 135 033	-7 288 912
PV	-7 288 912											

Month	1	2	3	4	5	6	7	8	9	10	11	12
Lease of the building	-267 786	-267 786	-267 786	-267 786	-267 786	-267 786	-267 786	-267 786	-267 786	-267 786	-267 786	-267 786
Service payment	-450 000	-450 000	-450 000	-450 000	-450 000	-450 000	-450 000	-450 000	-450 000	-450 000	-450 000	-450 000
Total	-717 786	-717 786	-717 786	-717 786	-717 786	-717 786	-717 786	-717 786	-717 786	-717 786	-717 786	-717 786
Discount factor	1	0,983	0,966	0,950	0,933	0,917	0,902	0,886	0,871	0,856	0,842	0,827
Discounted cash flow	-717 786	-705 521	-693 466	-681 617	-669 971	-656 523	-647 271	-636 211	-625 341	-614 656	-604 153	-593 830
Aggregated Discounted cash flow	-717 786	-1 423 307	-2 116 774	-2 798 391	-3 468 362	-4 126 885	-4 774 156	-5 410 367	-6 035 708	-6 650 363	-7 254 516	-7 848 347
PV	-7 848 347											

Inflation	Nominal rate
1%	24%
	Real rate
	23%

Discount factor per month	0,017

Appendix 7 Investment in construction and rental costs by year

Year	0	1	2	3	4
Project development	-145000				
Lease of land	-1 881 000	-2 052 000	-2 052 000	-2 052 000	-2 052 000
Purchase of metal structure	-3 248 000				
Concrete	-324 800				
Building Installation	-812 000				
Equipment	-1 124 850	-180000	-180000	-180000	-180000
Equipment Installation	-150 728				
Total	-7686377,5	-2 232 000	-2232000	-2 232 000	-2232000
Discount factor	1	0,813	0,661	0,537	0,437
Discounted cash flow	-7686377,5	-1814616	-1475352	-1198584	-975384
Aggregated Discounted cash flow	-7686377,5	-9500994	-10976346	-12174930	-13150314
PV	-13150314				

Year	0	1	2	3	4
Lease of the building	-3 213 432	-3 213 432	-3 213 432	-3 213 432	-3 213 432
Service payment	-5 400 000	-5 400 000	-5 400 000	-5 400 000	-5 400 000
Total	-8613432	-8613432	-8613432	-8613432	-8613432
Discount factor	1	0,813	0,661	0,537	0,437
Discounted cash flow	-8613432	-8 613 433	-8 613 433	-8 613 433	-3 764 070
Aggregated Discounted cash flow	-8613432	-17 226 865	-25 840 297	-34 453 730	-38 217 800
PV	-38 217 800				

Annual discount factor	23%

Discount factor per month	0,017

* All the figures have been provided by Astra Shipping Agency in unstructured way.