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Railways, Airports and Sea Container Operators as Publicly Listed Companies – Financial Performance and Shareholder Value Creation Perspective



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ABSTRACT

Logistics infrastructure and transportation services have been the liability of countries and governments for decades, or these have been under strict regulation policies. One of the first branches opened for competition in EU as well as in other continents, has been air transports (operators, like passenger and freight) and road transports. These have resulted in lower costs, better connectivity and in most of the cases higher service quality. However, quite a large amount of other logistics related activities are still directly (or indirectly) under governmental influence, e.g. railway infrastructure, road infrastructure, railway operations, airports, and sea ports. Due to globalization, governmental influence is not that necessary in this sector, since transportation needs have increased with a much more significant phase as compared to economic growth. Also freight transportation needs do not correlate with passenger side, due to the reason that only a small number of areas in the world have specialized in the production of particular goods. Therefore, in a number of cases public-private partnership, or even privately owned companies operating in these sub-branches have been identified as beneficial for countries, customers and further economic growth. The objective of this research work is to shed more light on these kinds of experiments, especially in the relatively unknown sub-branches of logistics like railways, airports and sea container transports. In this research work we have selected companies having public listed status in some stock exchange, and have needed an amount of financial scale to be considered as a serious company rather than a start-up phase venture.

Our research results show that railways and airports usually need high fixed investments, but have showed in the last five years generally good financial performance, both in terms of profitability and cash flow. In contrary to common belief of prosperity in globally growing container transports, sea vessel operators of containers have not shown that impressive financial performance. Generally margins in this business are thin, and profitability has been sacrificed in front of high growth – this also concerns cash flow performance, which has been lower too. However, as we examine these three logistics sub-branches through a shareholder value development angle during the time period of 2002-2007, we were surprised to find out that all of these three have outperformed general stock market indexes in this period. More surprising is the result that financially a bit less performing sea container transportation sector shows the highest shareholder value gain in the examination period. Thus, it should be remembered that the provided analysis shows only a limited picture, since e.g. dividends were not taken into consideration in this research work. Therefore, e.g. US railway operators have a disadvantage to others in the analysis, since they have been able to provide dividends for shareholders in a long period of time. Based on this research work we argue that investment in the transportation/logistics sector seems to be a safe alternative, which yields with relatively low risk high gain. Although the global economy would face a smaller growth period, this sector seems to provide opportunities in more demanding situations as well.

Keywords: Privatization, transportation sector, logistics, publicly listed companies, shareholder value

TIIVISTELMÄ

Logistinen infrastruktuuri ja kuljetuspalvelut ovat olleet perinteisesti säännöstelyn kohteena, mutta myös paljolti maiden ja näiden julkisten toimintojen hoitamaa sekä omistamaa. Eri sektoreita ollaan kuitenkin Euroopassa ja muissa maanosissa vapautettu viime aikoina, ja yleismaailmallisesti lentokuljetukset (niin matkustaja kuin rahti) ja kumipyöräkuljetukset ovat olleet ensimmäisiä vapautuneita alasektoreita. Yleensä kilpailun vapautuminen ja uusien yksityisten yritysten alalle tuleminen on johtanut alhaisempiin kustannuksiin, laajentuneeseen valikoimaan ja useimmassa tapauksessa parantuneeseen palvelun laatuun. Kuitenkin logistiikkaan liittyviä toimintoja on vielä runsaasti vapautumatta; tällaisia ovat esim. rautatieinfrastruktuuri, maantieverkosto, rautatiekuljetukset, satamat ja lentokentät. Kuitenkin valtiollinen omistus näissä luetelluissa tapauksissa ei ole usein tarpeellista, johtuen yleisestä talouskasvusta ja tätä ruokkivasta kuljetussuoritteen huomattavan nopeammasta lisäyksestä. On myös muistettava, että talousyksiköiden erikoistuminen on johtanut tilanteeseen, jossa matkustajavirrat eivät välttämättä korreloi tavaravirtojen kanssa. Tämän johdosta yhteistyö julkisen ja yksityisen sektorin kesken logistiikkasektorin toiminnoissa, tai jopa täysin yksityiset toimijat ovat osoittautuneet hyväksi ratkaisuksi niin valtioille, asiakkaille kuin talouskasvulle. Tämän tutkimuksen tarkoituksena on tarkastella tämän toimialan uusia tulokkaita maailmanlaajuisesti, erityisesti alatoimialoilla, joita ei olla perinteisesti tarkasteltu kannattavuuden, kassavirran ja omistaja-arvon näkökulmasta; valittuina ovat rautatiekuljetukset, lentokentät ja merikonttioperaattorit. Olemme valinneet tutkimukseemme mukaan yrityksiä, jotka ovat jo listattuina johonkin maailman pörssistä, ja joiden liiketoiminnan laajuus on koettu riittävän suureksi (pienen aloittavien yritysten ongelma pystytään näin välttämään).

Tutkimuksemme mukaan rautatieoperaattorit ja lentokentät ovat hyvin kannattavia ja niiden kassavirta on hyvinkin positiivinen – tämä johtuu kustannusrakenteesta ja isoista kertaluontoisista investoinneista. Vastoin yleistä käsitystä, viiden vuoden aikana tehdyssä tilinpäätösanalyysissä huomasimme sen, että konttien kuljettaminen meriteitse ei ole ollut kovinkaan kannattavaa, ja kassavirta on ollut paljon pienempää kahteen ensiksi mainittuun verrattuna. Yleisesti ottaen marginaalit ovat olleet pieniä ja kassavirta tästä johtuen heikompa – näyttäisikin siltä, että toimiala on uhrannut kannattavuuttaan kasvun edessä. Analyysimme toisessa osassa tarkastelimme näiden alatoimialojen omistaja-arvon kehitystä, ja mielenkiintoista kyllä, nämä kaikki kolme tuottivat huomattavan paljon paremmin kuin eri pörssien vertailuindeksit. Yllättävää on sekin löydös, että konttikuljetukset meriteitse olivat sijoituskohteena paras aikavälillä 2002-2007. Pitänee ottaa kuitenkin huomioon, että tarkastelimme vain osakkeen hinnan kehittymistä, ja osinkoja emme tässä alustavassa tutkimuksessa huomioineet laisinkaan. Tämä tarkastelutapa tuottaa jonkin verran epäedullisen tuloksen rautatiesektorille, sillä yhdysvaltalaiset operaattorit ovat pitkään maksaneet kasvavia osinkoja omistajilleen. Tehdyn tutkimuksen perusteella päädyimme siihen, että valittujen alasektorien vaihtoehdot ovat olleet hyviä sijoituskohteita, ja niistä on saanut verrattain pienellä riskillä kohtuullisen hyvän tuoton. Vaikka talouskasvu lähivuosina olisikin laimeampaa, tarjoaa logistiikkasektori liiketoimintamahdollisuuksia myös jatkossa.

Avainsanat: Yksityistäminen, kuljetussektori, logistiikka, pörssilistatut yritykset, omistaja-arvo

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1 INTRODUCTION

To respond today's exploding international trade, companies form larger regional centers to serve more widespread area and focus on their core activities. Global trade almost doubled from 1990 to 2005: The volume has risen from 5 to nearly 10 trillion US dollars (Reidy et al. 2007). Towards the future the development of volumes seems to be impressive as well, however including more and more disparities (Hilmola et al. 2007a). According to the forecasts export (excluding energy products) of the EU 25 area to China, India and the "Development of Education in Africa"-countries will triple by the year 2030 and at the same time import from these regions of the world to the EU will grow by a factor of 2-3 (Lautso, et al. 2005). In the resulting highly unbalanced networked economy the role of transportation as a provider of flexibility in supply chains will turn into crucial. A transportation system may become profitless in some cases due to ongoing globalization of world trade: The nature of demand is increasingly dynamic and uncertain and as a result of growing range of consumer products the variation of length of life-cycles of goods will widen, and in most of the cases will shorten (see Hilmola et al. 2008; Xie 2008; Economist Intelligence Unit 2007; Larch 2007; Taylor 2006; Naim et al. 2006; Helo 2006).

In macro-economic level transportation growth could be derived from trade growth – several years ago United Nations (2005) argued that in the era of globalization average trade growth is 2.5 times compared to GDP growth. However, as noted later, United Nations (2007) confirmed this finding, but downgraded trade development for the years 2007-2008, arguing that it will approach 2. Thus, as this latter publication showed, trade growth contains significant fluctuations among the years, but generally it could be concluded that trade has increased from pre-globalization decades. As these findings were derived from World Trade Organization and International Monetary Fund data, we used United Nations database (2008) to further gain verification on this issue. As Figure 1 shows, world trade (import and export among re-import and re-export) is now nearly half from world's GDP, and has shown steady increase during fifteen years of 1992-2006. However, we would like to emphasize that yearly changes in trade volumes are large, and thus analyzing this phenomenon in longer time-periods shows the general trend.

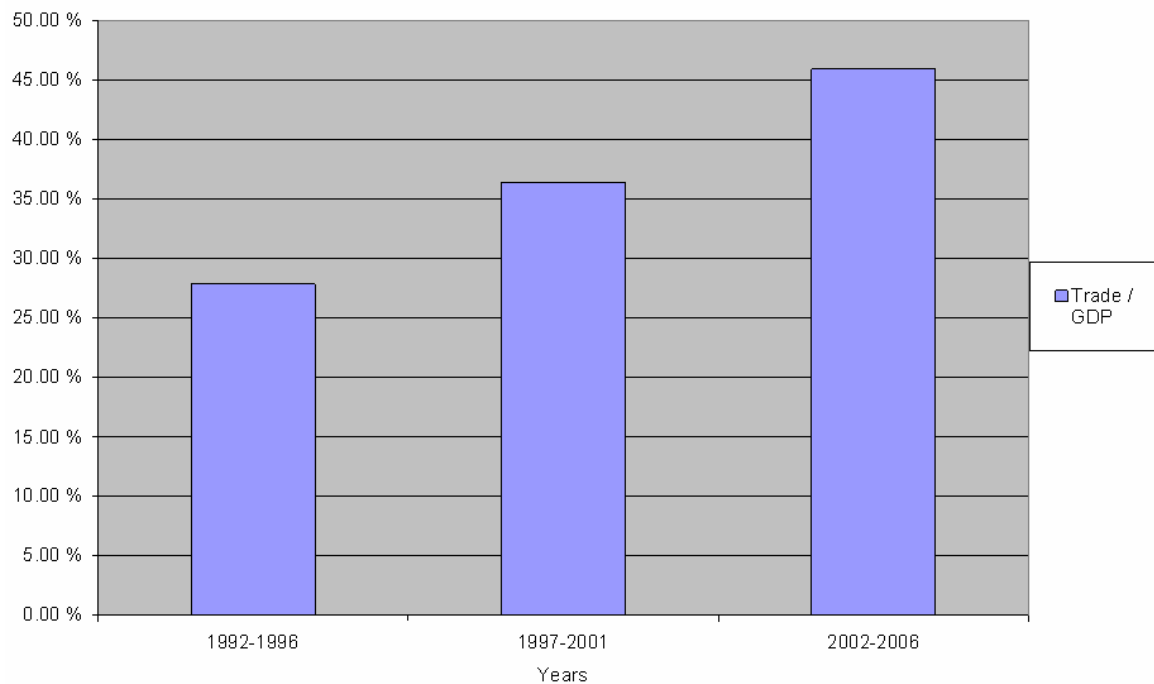


Figure 1. World's commodity trade divided by the gross domestic product of the whole world during three most recent five year periods. Source: United Nations (2008)

As multinational companies focus on minimizing risks of their operations to be able to secure increasing return for their shareholders, governments have to stress more the aspects of sustainable business making. In order to be able to foresee the effects of a sustainable transportation solution, we applied a combined measure, where elements of system dynamics work in line with the economic long cycle platform that underlies the development of the world economy (Hilmola et al. 2007b; Modis 2007; Ayres 2006, 2005; Linstone 2002; Modelski 2001; Dator 1999; Marchetti 1988; Kondratieff 1925). The overall objective is to envisage scenarios on the future development of the transportation business: To see how the interaction of Gross Domestic Product (GDP), stock market prices, capacity addition & utilization decisions and capital investments could be used to predict the future demand and supply conditions on the global transportation markets. As transportation activity grows among trade growth, but as new technologies and regulations (e.g. environmental) for transports are being formed, so does the changes in the business conditions of actors in transportation sector. Consider sea container operator 30 years ago – what a lousy business it was (e.g. see Knowles 2006 for review)! However, volumes changed the prospects for numerous sea container operators as well as harbours. Similarly railways have been

loosing continuously market share for other transportation modes, but possibly intermodal issues (like container transports) as well as new emerging environmental regulation, could change its position in markets in short amount of time. Thus, it should be reminded that air transports have been on continuous volume increase for decades of time, and current global knowledge driven economy appreciates short lead times, and reactivity. Therefore, these all, namely sea container operators, railways and airports are worth of studying further.

In this research work we have used mostly second hand data, gained from annual reports, press releases as well as stock markets. However, what makes unique this study compared to others, is its concentration on rarely discussed already emerged new sub-sectors of transportation / logistics. We have selected most developed actors (more or less the largest ones) from each three sub-sectors, and analyzed situation in this global markets through this perspective. Our research problem in this work could be defined with following questions: *“Do new comers in transportation markets represent good investment opportunity?”*, and *“How their financial performance has developed during years, and are there any common sub-sector characteristics?”*

This scrutiny is organized in following manner: In the second part of the study the theoretical foundations on the relationships between capacity addition & utilization, GDP, stock market prices are set out from a transportation system standpoint, followed by a general description on the selected actors flavored with financial aspects. In the fourth stage the methodology for this research is depicted in detail. In Section 5 the indices are introduced with view on each transportation sector and from the portfolio angle. Thereafter, the empirical data is analyzed so that it would be possible to outline the future circumstances in the global transportation business. Finally conclusions are drawn as well as possible future research paths are suggested.

2 THEORY BACKGROUND

The turbulent system of global business environment puts transport service providers in a challengeable position, as the nature of transport is multidimensional generating itself demand while being also of a derived nature with the ability of engendering positive externalities (Quinet et al. 2004). Transportation systems are conceived to be a critical part in nowadays large supply chain networks and collaborative approach is needed from the partners to minimize inventory costs and shortening planning cycles (Wilson 2007; Helo et al. 2006; Feng et al. 2005; Tao et al. 2003). This business sector is set to be a part of the “economy” component that interacts horizontally with “environment” on the one hand and “society” on the other. Vertical linkages link transportation to other sectors of the economy and all the previous connections can be captured via state flow relationships specifying static and dynamic variables for each case over time. This “time” variable is the point where the model developed by a MIT research group comes in integrating economic long cycle theory with system thinking (Forrester 1976; Sterman 1985): Their work concluded that “*Kondratieff long cycles*” last 45 to 60 years and the major reason for fluctuations in these are caused by the delays of input of capital investments as well as labor sophistication. At the same time their research spelled out that in the case of shorter waves of 15 to 20 years, fluctuations are caused by capacity addition investment projects and in the shortest timescale the disturbances are born due to the mismatch of the interplay of certain elements of a business environment such as order backlog, existing inventory, amount of productions and employment.

Academic literature brought up an argument that on the other hand that the reason for the emergence of this mismatch lies in the timing of strategic options of manufacturer companies to replenish their products on the market (Modis 2007; Miller et al. 2007). It has to be noticed that in the case of seasonal/fashion products the fluctuations in the need for transportation is more or less stable without a large scale differences in the magnitudes, and the need for transport grow and decline according to the phases of start up, rapid growth, maturation and decline. This is the so called logistic growth model. For non-seasonal goods the setting is the same except that the longitude of each period of life-cycle varies much more and the magnitude of variations between

the periods might be way bigger. With the help of system simulation, however, it is possible to envisage more precisely these parameters of fluctuations in the demand curve and their implications for a transportation system; by using the principles of system modeling one can capture the feedback loops and delays within the context of the specific business environmental settings (Miller et al. 2007). In this manner it will become possible to evaluate when and where capacity addition & utilization is needed as a response to quickly to changing circumstances. Current studies suggest setting a congestion level above which capacity investments become a must (Miller et al. 2007). In many cases short incremental additions of capacity is less risky and cheaper than large scale projects. In this sense in a short timeframe road transportation seems to be a better option compared to other modes of transport. On the other hand, in the long run with prospects of continuous growth of trade in conjunction with the 5th long wave, railway, air and sea transport might be more beneficial. Given the fragmented state of global business environment and the different groups of goods of bulk and value products, investments into inter-modal solutions can be argued to be justified. However, just examining plain statistics, air transports and infrastructure as well as services related to these are argued to have most solid platform for growth (Marchetti 1988). It is a fact that railways were the main driver of the 2nd Kondratieff wave (e.g. Ayres 1990), while sea transports have been having so favorable development during last century perspective, due to superior carrying capacity and cost efficiency of raw materials transports, and more recently unit cargo through the use of containers. In these two latter cases deregulation, privatization and more intensive competition has brought most of the results.

3 RESEARCH ENVIRONMENT – ANALYSIS OF PUBLICLY LISTED RAILWAYS, AIRPORTS AND SEA CONTAINER OPERATORS

Into the target platform of this research eight rail operators (mostly freight), eight container transport enterprises and five airports were taken into account. The prime precondition for a company to become selected was its presence in a public international stock market in any part of the world. The reference period of calculation was fixed to be between 4 January 2002 and 28 December 2007. However, the needed data about income statements and balance sheet were taken from the years 2002 and 2006. These all firms are well known and have extensive global reach and so it can be assumed that the development trend of these firms gives a proper insight into the state of each industry. The enterprises are introduced in accordance with the business segment they operate in.

3.1 Rail Transport Firms

Guangshen Railway Company Limited is the first Chinese rail enterprise to sign on to public stock exchange: To the one of Hong Kong. Despite its relatively young age - established in 1996 – this company is the only operator that connects mainland China with Hong Kong. The main railway route of operation is between Guangzhou and Shenzhen and its main source of revenue is passenger transport. Actually the reliance has become stronger all the time: While during year 2002 approx. 73 percent, and in 2006 already 79 percent out of its total revenue came from passenger transport, as profit after tax increased by 29 percent during the same period (Annual report 2006, 1). Another set of essential ratios can be read below from Table 1.

Table 1. Key Measures of Profitability (Thomson One Banker 2007). Ticker: GSH

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	5.15	5.81	5.47	4.98	5.47
Reinvestment Rate (%)	1.67	1.29	1.08	0.76	1.97
Return On Assets (%)	4.31	5.10	5.06	4.60	5.04
Return On Invested Capital (%)	4.84	5.79	5.45	4.98	5.50
Cash Flow to Sales (%)	33.21	31.77	32.71	34.84	38.10
Net Margin (%)	21.46	18.72	18.68	21.21	22.13

CSX Corporation is a special organization in the sense that it both owns companies providing rail, inter-modal services, but it also has its standalone entities of its own: CSX Transportation Inc. (CSXT) and CSX Intermodal Inc. The former maintains the largest railroad in eastern US whereas the latter facilitates cost – to – cost transportation services via tracks, terminals and rail. The conglomerate was established in 1978, but it has been managed in a marvelous manner since then: The operating income climbed up by 209 percent from 1.019 to 2.138 million \$ (CSX 2007). Some other relevant figures can be found below in Table 2.

Table 2. Key financials (Thomson One Banker 2007). Ticker: CSX

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	15.51	15.51	5.11	3.98	6.86
Reinvestment Rate (%)	13.79	14.25	3.81	2.52	5.47
Return On Assets (%)	6.34	5.82	2.68	2.42	3.42
Return On Invested Capital (%)	10.78	10.05	4.46	3.83	5.38
Cash Flow to Sales (%)	22.49	16.15	15.87	15.46	14.47
Net Margin (%)	13.69	13.29	4.23	3.16	5.20

Union Pacific Corporation (UPC) - Union Pacific Railroad Company (UPRR) manages the largest railways system in North America covering over two-thirds of the US. It is interesting to notice that it took only 38 years for this firm to reach the leading position. The emphasis of the company is on freight transport though it operates a significant commuter train service in Chicago. It establishes not only connections with the Canadian rail system and to all six major corridors to Mexico, but it links the East and West sides of the US too. The company's customer base is large, encompassing an extensive set of commodities. Nevertheless the business is not that improving: The operating margin decreased from 20.2 in 2002 to 18.5 percent in 2006 (UPC 2007, 2004). Below can be seen some additional ratios in Table 3.

Table 3. Key financials (Thomson One Banker 2007). Ticker: UNP

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	11.07	7.78	4.83	11.95	13.26
Reinvestment Rate (%)	8.85	5.40	2.35	9.91	11.26
Return On Assets (%)	5.31	3.86	2.78	5.28	5.45
Return On Invested Capital (%)	8.87	6.46	4.60	8.69	8.98
Cash Flow to Sales (%)	18.40	18.00	17.53	20.71	20.61
Net Margin (%)	10.31	7.56	4.94	11.90	10.74

Kansas City Southern (KCS) is an international holding company and its core subsidiary is The Kansas City Southern Railway Company (KCSR). This unit specializes in serving central US territories via connection to key industrial districts in Mexico. The two other subsidiaries are Kansas City Southern de Mexico (KCSM) and Panama Canal Railway Company (PCRC). KCS is the oldest rail initiative in the US started in 1887. In this case experience in business is intertwined with business model innovation: The operating income jumped by 640 percent during four years, from 48.0 in 2002 to 304.3 million dollar in 2006 (KCS 2007, 2004). Some core ratios can be found in Table 4 below.

Table 4. Key financials (Thomson One Banker 2007). Ticker: KSU

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	5.97	7.52	1.59	0.74	8.02
Reinvestment Rate (%)	5.97	7.52	1.59	0.74	8.02
Return On Assets (%)	4.96	5.59	2.32	2.04	4.30
Return On Invested Capital (%)	6.47	7.55	3.35	3.00	6.47
Cash Flow to Sales (%)	18.11	9.83	20.77	8.57	15.90
Net Margin (%)	6.56	7.46	3.82	2.10	10.10

Burlington Northern Santa Fe Corporation (BNSF) is a firm engaged mainly in the rail freight transport and focuses on consumer products, industrial products, coal and agricultural items. The company's core targets in the US are Midwest, Pacific Northwest, the Western, Southwestern and Southeastern regions with ports connections. BNSF was commenced in 1994 and shows strong growth rates in these days too: The operating income climbed up by 213 percent between 2002 and 2006 from 1656 to 3517 million dollars. Complementary figures can be seen from Table 5 below.

Table 5. Key financials (Thomson One Banker 2007). Ticker: BNI

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	18.86	16.27	8.88	9.93	9.63
Reinvestment Rate (%)	15.85	13.43	6.29	7.61	7.31
Return On Assets (%)	7.11	6.13	3.78	4.13	4.11
Return On Invested Capital (%)	12.79	11.17	6.82	7.28	7.10
Cash Flow to Sales (%)	20.89	20.54	21.93	22.86	22.93
Net Margin (%)	12.59	11.79	7.23	8.67	8.46

Norfolk Southern Corporation (NS) was settled in 1980. Its subsidiary, Norfolk Southern Railway Company supplies southeast, east and Midwest part of US. NS is also international in the sense that it is involved in overseas freight transport via several Atlantic and Gulf Coast ports. In addition to railways transport, NS' non-carrier subsidiaries are present in the business fields of the acquisition, leasing and management of coal, oil, gas and minerals. The development of commercial real estate and the leasing or sale of rail property and equipment is a viable business segments for the conglomerate too. Despite the large portfolio NS is capable of keeping the investors happy: The income from railways activities rose by 220 percent between 2002 and 2006, starting from 1158 ending up to 2557 million US dollars (Norfolk Southern Corporation 2007, 2004). Some other financial measure values are given below in Table 6.

Table 6. Key financials (Thomson One Banker 2007). Ticker: NSC

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	15.62	14.83	12.33	7.94	7.31
Reinvestment Rate (%)	12.67	12.58	10.44	6.20	5.70
Return On Assets (%)	6.92	6.35	5.52	4.24	4.15
Return On Invested Capital (%)	11.08	10.12	8.44	6.14	5.84
Cash Flow to Sales(%)	22.79	24.16	22.37	16.85	17.00
Net Margin (%)	15.68	15.02	12.62	8.27	7.34

Canadian National Railway Company (CN) provides services not only in all major metropolitan area of Canada, but also in the US in regions such as in Illinois and in the Great Lakes district. The firm has existed since 1919. It extended its operations between 2001 and 2004 by starting to supply all five Canadian ports on the Atlantic and Pacific oceans, but it can be seen in New Orleans too. It is the largest rail operator in Canada carrying a large mix of commodities. The development in financial terms between 2002 and 2006 is more than spectacular: For example the net income grew by 260 percent from 800 to 2087 million dollar. Some other key numbers are presented in Table 7.

Table 7. Key financials (Thomson One Banker 2007). Ticker: CNI

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	21.88	18.75	18.76	11.20	8.93
Reinvestment Rate (%)	18.32	15.44	15.55	8.29	6.19
Return On Assets (%)	10.07	8.47	8.17	5.27	4.28
Return On Invested Capital (%)	15.63	13.07	12.57	8.14	6.59
Cash Flow to Sales (%)	35.61	37.79	35.68	25.03	23.32
Net Margin (%)	27.05	21.49	19.81	12.47	9.35

Canadian Pacific Railway Limited (CPRL)'s business concept is to direct traffic from peripheral lines and connectors onto its mainline railway network. It has expanded its reach by forming alliances and connections with other operators in North America, which gives it the chance to facilitate services and access to markets all over North America beyond its own rail network. The totally owned subsidiaries are: Soo Line Railroad Company (Soo Line), a railroad firm operating in the US Midwest and Delaware, and Hudson Railway Company, Inc. (D&H), which functions between eastern Canada and major US markets, covering for example New York City, Pennsylvania, and Washington, D.C. CPRL activities are highly profitable despite its young age. The net income took off by 160 percent between 2002 and 2006; from 496.0 to 796.3 million dollar. Some other indicators are presented below in Table 8.

Table 8. Key Measures of Profitability (Thomson One Banker 2007). Ticker: CP

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	17.23	12.98	10.79	11.29	15.21
Reinvestment Rate (%)	14.80	10.84	8.65	9.00	12.73
Return On Assets (%)	8.71	6.41	5.68	6.15	7.22
Return On Invested Capital (%)	12.74	9.31	8.09	8.78	10.36
Cash Flow to Sales (%)	26.03	25.17	20.19	10.91	22.59
Net Margin (%)	17.99	12.73	11.08	11.46	14.29

From the Tables 1 - 8 above it can be seen that the railway sector globally is healthy: In all cases the companies' sales excess into a great extent their cash flow. Guangshen Railway is a prime example of sales revenue generating machine: Despite the fact that its figures came down during the five years of examination, the firm still showed an extremely good result in terms of the measure of Cash Flow to Sales in 2006. This Chinese enterprise has been able to keep very strong control on its costs throughout the years too. Investments and assets has generated stable income for shareholders during the examined period of time as well. CSX Corporation managed to increase its

profitability in a great extent too: The ratio of net margin more than doubled during the explored time interval. The company was able to raise its returns on assets and also sales improved compared to cash flows figures. Union Pacific Corporation kept its business in overall at stable path: The ratios of net margin, cash flow to sales and return on assets have not changed much from 2002 to 2006. Nevertheless one can notice a slight downward trend in its performance: In relative term this firm has lost market space to its competitors. Kansas City Southern has been able to raise its returns on assets and sales figures. Despite these numbers the company's profitability came down though not that dramatically. BNSF managed to reap more profit out of its activities and increased the returns on assets during these five years, but its sales decreased slightly in comparison with its cash flow. Norfolk Southern Corporation was able to push its profitability during the period under examination up more than 100 percent and sales figures became better in comparison with cash flow too. Return on assets rose as well and the reinvestment rate climbed up over twofold. Canadian National Railway Company provided the most impressive advancement among all the railway businesses. Its net margin grew by 300 percent from 9 percent in 2002 to 27 percent in 2006. It doubled its returns on assets too from 4 percent to 10 percent. Canadian Pacific Railway Company in relative term has been losing to its biggest Canadian competitor, but still it managed to improve its result in relation to both net margins, and cash flow to sales. This railway operator generated more return on its assets in 2006 than in 2002 as well.

3.2 Publicly Listed Airports

Vienna International Airport is under the private control of Flughafen Wien AG that turned to be a public limited company during year 1992. This company carries out all possible activities needed for the maintenance and development of the airport. The Airport division of the company supervises the daily management of the terminal, and all issues pertaining to passenger and baggage handling. The Handling division overlooks activities for scheduled, charter and general aviation flights. The non-aviation division implements additional value-added projects at the airport, such as shopping, security, technical services and real estate activities. The total turnover of the company rose 16.5 percent from 398.3 in 2004 to 463.9 million EUR in 2006, while net profit grew during the same time 7 percent from 71.7 to 76.8 million EUR

(Flughafen Wien AG 2007). Table 9 below illustrates some additional performance indicators of the firm.

Table 9. Key financials (Thomson One Banker 2007). Ticker: FLU

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	11.46	11.20	11.21	12.16	12.57
Reinvestment Rate (%)	5.19	4.87	4.64	4.95	5.44
Return On Assets (%)	6.47	6.99	7.77	8.82	9.21
Return On Invested Capital (%)	8.85	10.02	11.09	11.98	12.33
Cash Flow to Sales (%)	35.09	41.43	37.42	38.67	33.98
Net Margin (%)	16.55	18.11	18.00	20.33	22.08

Zuerich International Airport is managed by Flughafen Zuerich AG. The evolvement of Unique Airport Group as the private manager of the airport took place in 2000. The company is divided into two divisions: Aviation Operations is for the strategic development of infrastructure of the airport. Services such as the operation of the runway system, freight funneling, as well as the provision of security belong to the activities of this subunit. Non-Aviation Operations is to create the commercial platform for the airport, such as beverages, real estate. The airport is home for more than 180 companies and is doing relatively well in terms of demand management: Passenger traffic has increased between 2002 and 2006 by 13 percent from approx. 17 to 19 mill., but freight figures dropped by 17 percent from 309724 tons to 257057 tones (Zuerich AG 2006). Additional facts can be found from Table 10.

Table 10. Key financials (Thomson One Banker 2007). Ticker: UZAN

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	8.59	7.60	2.26	0.48	0.98
Reinvestment Rate (%)	8.11	7.60	2.26	0.48	0.98
Return On Assets (%)	4.76	4.11	3.77	3.29	2.40
Return On Invested Capital (%)	5.67	4.97	4.32	3.68	2.65
Cash Flow to Sales (%)	36.41	37.96	31.96	30.53	34.59
Net Margin (%)	11.86	8.42	2.71	0.67	1.53

Fraport AG originates back to 1924 and is the “backend office” for the International Airport of Frankfurt. This is organized in a way that the Aviation division manages all operations concerning flights and terminals. The retail & properties is engaged in the supervision of business facilities in the airport. Cleaning, maintenance and preparation of aircrafts, the implementation of flight transfers and all baggage movements are to

be set up by the Ground Handling group. There is also a unit for consultation services: privatization processes of other airports, embracing airport management, ground services, aviation security constitute the operational field of external activities unit. In terms of financial performance the firm succeeded unbelievably well between 2002 and 2006: For instance operating profit climbed up by 800 percent from 41.2 to 330.4 million EUR (Fraport AG). Other essential figures can be seen from the Table 11 below.

Table 11. Key financials (Thomson One Banker 2007). Ticker: FRA

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	10.27	7.73	6.90	6.19	-6.41
Reinvestment Rate (%)	6.60	4.47	4.90	6.19	-8.41
Return On Assets (%)	6.32	4.86	4.39	3.96	-1.84
Return On Invested Capital (%)	8.45	6.48	5.78	5.17	-2.35
Cash Flow to Sales (%)	22.39	18.65	19.97	23.67	21.94
Net Margin (%)	10.70	7.71	6.83	6.28	-6.70

Kobenhavns Lufthavne AS was privatized in 1990, though still today Danish government has a share in it with 39.5 percent. As the facilitator of the Copenhagen airport, its tasks are delivered in the following manner: Traffic business subdivision is engaged in the operations and functions of the Copenhagen and Roskilde airports, for example, it sets out actions required for the passengers traffic via these airbases. Commercial business sector takes the responsibility of carrying out the retail services offered by airports to passengers and other users. The International business unit operates CPH's investments in airports abroad, active ownership and sales of consultancy services to these transport centers. The Group is present in Denmark, but has shares and properties also in China, the UK, Mexico and Norway. Financially the firm is generating profit: the newest figures tell that in the first half of 2007, the airport made a positive result of 75 million EUR (*Kobenhavns Lufthavne AS* 2007). In Table 12, one can see other essential indicators on financial performance of the firm.

Table 12. Key financials (Thomson One Banker 2007). Ticker: KBHL

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	21.27	20.19	18.62	13.01	10.87
Reinvestment Rate (%)	1.69	11.81	13.86	9.38	8.03
Return On Assets (%)	10.48	9.61	8.76	6.56	5.86
Return On Invested Capital (%)	12.78	11.65	10.70	7.74	6.79
Cash Flow to Sales (%)	71.46	33.45	42.10	43.55	47.30
Net Margin (%)	25.25	24.48	23.85	18.72	16.21

Grupo Aeroportuario del Sureste, S.A.B. de C.V. (ASUR) – acting as a private company from 1998, runs 12 airports, which satisfy two metropolitan regions (Guadalajara and Tijuana), many tourist destinations, as well as a number of other cities. The Company's airports operate a great amount of international routes, covering for example Guadalajara-Los Angeles. Financially the Group is on sustainable ground, since figures give positive messages: For instance in the second interim report of 2007, the corporation showed the operating profit increase of 25.7 percent (*Grupo Aeroportuario del Sureste, S.A.B. de C.V. 2007*). One can observe additional key figures in Table 13 below.

Table 13. Key financials (Thomson One Banker 2007). Ticker: ASURB

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity	3.94	4.44	5.13	2.50	2.05
Reinvestment Rate	2.37	2.93	3.29	1.09	-2.32
Return On Assets	3.64	4.15	4.85	2.38	1.97
Return On Invested Capital	3.94	4.44	5.13	2.50	2.06
Cash Flow to Sales	57.85	58.68	57.65	56.97	54.44
Net Margin	23.59	27.29	30.72	18.83	17.76

From Tables 9 – 13 it can be seen that airports are very strong in terms of increasing their sales in comparison their cash flow. Vienna International Airport is the only examined company that was not able to make improvements in converting revenues into actual profits during the target period of time. It had to pay less returns on assets in 2006 than in 2002 too though it managed to increase its sales compared to cash flow movements. Zuerich International Airport has become 10 times more profitable within the period of 2002 to 2006. It almost doubled the amount of returns to assets too. Fraport AG from Frankfurt Am Main developed in the same direction with Zuerich. The net margin rose significantly during examination period. This airport increased the returns on assets almost twofold during the same period. Copenhagen

International Airport is its own class in terms of sales to cash flow: This ratio in 2002 was more than 41 and at the end of 2006 it reached 71 that is the highest figure of all among the examined companies in this study. This is impressive result especially when knowing that this same airport paid almost double as much returns on assets in 2006 than in 2002. The representative airport of Mexico has also extremely high output in terms of sales increase in comparison with cash flow: 54 in 2002 and 57 in 2006. This company also managed to increase its ratio of return on assets more than 80 percent during the examined period.

3.3 Sea Container Transport Firms

Orient Overseas (International) Limited (OOIL) has three main focus areas of business activity: International container and logistics services, terminal operations and property development / investment consultancy. Everything started from container transport in 1969. The company primary target of operations is in China. The group net profit decreased in 2006 compared to 2005 by 11 percent from 483.7 to 431.6 million EUR (OOIL Annual Report 2006). On the other hand when looking at the long-term development, the improvements of key figures are impressive: Between 2002 and 2006 for instance the net income took off by 1122 percent from 38 to 427 million EUR (OOIL 2007). Table 14 presents some key figures about the financial performance of the group.

Table 14. Key financials (Thomson One Banker 2007). Ticker: OROVF

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	23.17	31.88	46.04	33.41	6.11
Reinvestment Rate (%)	16.67	23.18	36.80	30.26	5.19
Return On Assets (%)	12.47	16.34	21.58	14.65	4.04
Return On Invested Capital (%)	n.a.	19.18	26.05	18.14	4.94
Cash Flow to Sales (%)	13.94	16.96	19.98	14.21	7.10
Net Margin (%)	12.60	13.86	16.19	10.15	2.10

Hanjin Shipping Co. Ltd. established in 1977 from Korea specializes in modern containerships, for gas tankers and bulk carriers. It is one of the largest corporations being present on six continents. It is able to support its operations with inland transport and is involved in logistics business too with a set of terminals, off-dock container yards. The financial platform of the company is on a stable ground: The net

income rose from 2002 to 2006 by 437 percent (Thomson One Banker 2007). Table 15 below gives an outlook on some other essential dimensions of the financial situation.

Table 15. Key financials (Thomson One Banker 2007). Ticker: 000700

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	13.64	27.70	58.13	41.86	10.74
Reinvestment Rate (%)	10.34	23.95	53.98	39.43	6.95
Return On Assets (%)	6.53	11.46	15.07	7.83	3.07
Return On Invested Capital (%)	7.86	15.46	23.57	12.69	5.40
Cash Flow to Sales (%)	2.24	10.15	12.37	11.28	3.49
Net Margin (%)	4.23	7.10	9.60	4.82	1.14

Mitsui O.S.K. Lines Ltd. from Japan founded in 1884 earns its living on combining many inter-related market segments: The Nonscheduled Specialized Shipping unit offers international shipping services by ships that can carry all kinds of goods. The Container Shipping division runs vessels in regular scheduled routes and container terminals. The Logistics unit provides integrated logistics services, coupled with transportation and storage of cargo goods. The Ferry unit is dedicated to cargo and passenger transport in the region of Pacific. The Related division is concentrating on value-added services, such as trading, temporary staffing or marine consultation businesses. In addition the company provides among others services such as management of ships, the finance and ship manufacturing businesses, etc. Financially the firm is doing extremely well: Between 2002 and 2006 the net income of it increased by approximately 1155 percent from 83 to 970 million dollar (MOL 2007). Key performance metrics are available below in Table 16.

Table 16. Key Measures of Profitability (Thomson One Banker 2007). Ticker: 9104

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	31.47	37.81	28.68	8.87	6.77
Reinvestment Rate (%)	25.69	31.17	23.08	5.24	2.91
Return On Assets (%)	9.18	9.67	6.47	2.63	2.37
Return On Invested Capital (%)	12.76	13.52	8.78	3.44	3.02
Cash Flow to Sales (%)	14.21	13.81	11.61	11.68	9.03
Net Margin (%)	8.32	8.37	5.55	1.62	1.17

Nippon Yusen Kabushiki Kaisha is a Japanese conglomerate is an actor on the shipping sector. The firm has been active since 1885. It includes several subunits: The

Liner division offers international marine cargo transportation services by liners. The Marine Transportation division provides international marine freight services by irregular liners, tankers. The Distribution division is engaged in the warehouse and freight agency businesses for marine, land and air transportation. Its Terminal division is involved in the container terminal and harbor transportation businesses in overseas markets. The Passenger Vessel division is engaged in the passenger vessel business in Japan and the United States. Its Real Estate division offers property development consultancy. The Others segment is an umbrella unit for many issues such as wholesale of equipment and machinery, petrochemical products; the provision of information processing services; the travel business. From the financial point of view the results indicate a beginning of a downturn: Both operating income and net income decreased in comparison with the year of 2005. The former came down by 38.2 percent and the latter by 0.3 percent (NYK Line 2007). Key performance indicators are depicted in Table 17.

Table 17. Key financials (Thomson One Banker 2007). Ticker: 9101

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	18.35	18.15	10.77	4.70	5.86
Reinvestment Rate (%)	13.61	14.27	7.46	1.67	2.46
Return On Assets (%)	6.11	5.70	3.45	1.92	2.53
Return On Invested Capital (%)	8.30	7.65	4.49	2.42	3.13
Cash Flow to Sales (%)	6.68	11.43	8.48	8.30	7.02
Net Margin (%)	4.77	4.44	2.49	1.14	1.53

A.P. Moller-Maersk Group is a corporation, home for several independent companies involved in different industries. Since its commencement in 1912, the most significant business sectors are currently container transportation, oil production and shipbuilding. Arguably the most important is transportation: There are five firms of the Group are engaged in this sector. From the viewpoint of finance, there some difficulties are about to rise on the horizon: Despite the significant increase of net revenue of 28 percent from 25.8 in 2005 to 32.9 billion EUR in 2006, the net income of the Group came down by almost 20 percent from 2.51 in 2005 to 2.01 billion EUR in 2006 (Maersk 2007). Table 18 illustrates the situation from a different angle.

Table 18. Key financials (Thomson One Banker 2007). Ticker: MAERSKB.CO

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	12.32	17.81	23.59	20.30	16.65
Reinvestment Rate (%)	10.53	16.17	22.39	18.55	15.74
Return On Assets (%)	5.92	9.38	14.08	11.02	8.21
Return On Invested Capital (%)	7.69	12.09	17.73	14.30	10.71
Cash Flow to Sales (%)	11.16	17.79	17.99	17.55	16.49
Net Margin (%)	5.88	9.63	14.67	10.99	7.95

The Japanese *Neptune Orient Lines Limited (NOL)* that was formed in 1968 is an investment holding company. It has two subdivisions: The Liner unit manages container and shipping activities while the Logistics one is to satisfy the needs of customers with supply chain related problems. Main regions of business are transpacific, transatlantic, Intra-Asia and Asia-Europe. In financial terms the firm is profitable and is becoming even stronger on the markets: When comparing the net profit of the second quarter of 2006 to the one of 2007 the increase is 38 percent, from 49.6 to 68.9 million EUR (NOL 2007). Table 19 shows the performance through other aspects.

Table 19. Key financials (Thomson One Banker 2007). Ticker: N03

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	15.19	33.94	55.06	47	-44.93
Reinvestment Rate (%)	13.66	17.41	50.11	47	-44.93
Return On Assets (%)	8.79	18.66	24.99	12.47	-4.03
Return On Invested Capital (%)	12.86	26.92	37.64	18.3	-5.49
Cash Flow to Sales (%)	8.52	14.59	16.39	11.69	2.19
Net Margin (%)	5.01	11.06	14.4	7.76	-7.11

Compania Sud Americana De Vapores (CSAV) an enterprise from Chile engaged in shipping business from early on: It has been around since 1872. Its operations encompass five continents while providing comprehensive service for general, bulk items, fresh and frozen cargo, employing both its own and chartered vessels. CSAV operates permanent connections from certain ports with the help of its line service, fixed itineraries, but it also has a fleet of vessels of its own. Its financial condition improved in a significant manner from 2002 to 2006. Between these periods the net income of the firm jumped up by 680 percent from 37 to 256 million dollar (CSAV 2006, 2003). In Table 20 there are some additional indicators.

Table 20. Key financials (Thomson One Banker 2007). Ticker: VAPORES

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	-7.46	17.58	33.63	14.19	7.45
Reinvestment Rate (%)	-10.24	7.19	28.04	9.37	5.80
Return On Assets (%)	-1.42	9.95	17.35	8.79	5.66
Return On Invested Capital (%)	-2.18	14.99	24.59	11.94	7.70
Cash Flow to Sales (%)	-3.97	5.01	5.90	4.52	3.96
Net Margin (%)	-1.52	3.40	7.71	3.39	2.20

Evergreen Marine Corp. (Taiwan) Ltd. is a shipping enterprise with worldwide service in container transport started in 1968. The activity area covers east-west routes linking Southeast Asia, Hong Kong, Taiwan, Mainland China, Korea and Japan with the east and west coast of the United States. It tailors its service on raw materials and fresh foods. In the long term development dimension, the emphasis is on strategic alliances. In terms of financial performance rose in a smooth manner between 2002 and 2006: For instance the operating profit climbed from 57 to 117 million dollar – more than 200 percent (Evergreen Group 2007). Below in Table 21, one can find more accurate measures.

Table 21. Key financials (Thomson One Banker 2007). Ticker: 2603

PROFITABILITY RATIOS/DATE	12/31/06	12/31/05	12/31/04	12/31/03	12/31/02
Return On Equity (%)	0.70	21.63	26.11	9.28	2.93
Reinvestment Rate (%)	-7.62	12.90	23.33	8.19	1.27
Return On Assets (%)	1.01	10.21	10.50	4.85	3.06
Return On Invested Capital (%)	1.29	12.70	12.76	5.76	3.48
Cash Flow to Sales (%)	1.52	11.56	4.33	5.22	7.95
Net Margin (%)	0.27	8.69	9.26	3.37	1.58

From Tables 14 – 21 it can be noticed that this industry is the most unstable one: The ratio of Cash Flow to Sales is by far lower than in the other two transport segments – also reinvestment rates in some of the cases have been taking significant amount from available capital during observation period (reminds partly from situation, current profitability and cash flow is being sacrificed due to growth opportunities of the future). Orient Overseas International Limited managed its operations superbly over these five years. Net margin became 10 times bigger in 2006 than it was in 2002. This firm paid over three times more on assets and investment in 2006 than four years prior that. Hanjin Shipping Ltd. made a remarkable advancement during the period of examination too. Its net margin improved by over 300 percent and the ratio of return

on assets more than doubled during this interval. Still the company was not able to increase its sales compared to cash flow. Mitsui O.S.K. Lines Ltd improved its output too. While net margin ratio became more than sevenfold from 2002 to 2006, the company paid more than four times that much for return on assets in 2006 than five year earlier. The ratio of Cash Flow to Sales grew during this period more than 50 percent too. Nippon Yusen Kabushiki Kaisha was not able to increase its sales in comparison to cash flow during the period under attention, but the ratio of net margin improved over 250 percent. The ratio of return on assets showed over 200 percent improvement in 2006 than in 2002 as well.

A.P. Moller-Maersk Group could not keep its position on the markets, but it still generated nice results during the examined period of time. Sales income decreased, cost control of the firm weakened during this time. The company reduced returns on assets and investment in 2006 compared to 2002, as well. Neptune Orient Lines Limited is one of the great winners of competition of this time period. It was highly unprofitable in 2002, but it managed to build a stronghold on the markets by the end of 2006. Net margin of the company rose over 10 fold during these five years, being strongly negative in 2002. Sales increased clearly over 300 percent compared to cash flows while the company generated over 10 times more returns on assets in 2006 than in 2002. Compania Sud Americana De Vapores struggled all the time during this five years interval. Net margin turned to negative in 2006 when in 2002 the firm was still able to show positive ratio. Sales decreased compared to cash flow in such a manner that in 2006 this ratio turned out to be negative too. This enterprise was not able to generate any returns on assets in 2006, whereas still in 2002 the ratio was positive. Evergreen Marine Corp. (Taiwan) Ltd was among the losers two in the game for customers, but still it managed to generate some profit in 2006. Sales decreased dramatically in comparison to cash flow during this five years period, and cost control become weaker too, reaching almost 0 percent in 2006. The company had to reduce its returns on assets significantly, more than 300 percent during the time under examination.

4 RESEARCH METHODOLOGY

The basic set of data about the companies was gathered from the online databases of Thomson One Banker, between June 2007 and January 2008. The downloaded share price index, were weighted in relation to the turnover and total assets of each firm in respective sector (three sectors were examined in this study, namely railways, airports or sea container transports) either during years 2002 or 2006. During analysis, we found that weights of formed indexes, and eventually financial yield of formed index does not differ that much, whether year 2002 or 2006 is used, and therefore we have shown in the following analysis results based on the portfolios established with year 2002 data. Share price development was followed in this study weekly, which aided us to avoid problem of stock market closure during holidays in different countries and continents.

Table 22. Portfolios formed from railway sector companies with respect of revenues and total assets during year 2002 and 2006 (in million USD).

	Revenues		12/31/2002		12/31/2006	
			USD, mill.		USD, mill.	
Burling			8,979.00	21.0 %	14,985.00	24.1 %
CSX			8,152.00	19.0 %	9,566.00	15.4 %
Kansas			566.00	1.3 %	1,660.00	2.7 %
Norfolk			6,270.00	14.6 %	9,407.00	15.2 %
Union P			12,491.00	29.2 %	15,578.00	25.1 %
CanNatR			3,876.00	9.0 %	6,621.00	10.7 %
CanPacR			2,203.00	5.1 %	3,799.00	6.1 %
Guangsh			305.00	0.7 %	461.00	0.7 %
Total			42,842.00	100.0 %	62,077.00	100.0 %

	Total Assets		12/31/2002		12/31/2006	
			USD, mill.		USD, mill.	
Burling			25,767.00	21.0 %	31,643.00	19.7 %
CSX			20,951.00	17.1 %	25,129.00	15.6 %
Kansas			2,009.00	1.6 %	4,509.00	2.8 %
Norfolk			19,956.00	16.3 %	26,028.00	16.2 %
Union P			32,764.00	26.7 %	36,515.00	22.7 %
CanNatR			12,005.00	9.8 %	24,004.00	14.9 %
CanPacR			6,129.00	5.0 %	11,416.00	7.1 %
Guangsh			2,925.00	2.4 %	1,443.00	0.9 %
Total			122,506.00	100.0 %	160,687.00	100.0 %

As it could be noted from Table 22, in formed railway portfolio share of individual company was not dominating, however, having more than 10 % what is usually critical point in stock market funds. Similarly with railways, but in some cases more concentrated development was found from sea container transport (largest APMaersk with roughly 39-40 % share) as well as airport (largest Frankfurt airport with 63 % in sales model, and in assets model with 42 % share) portfolios (see Appendix B). As we formed in this study overall portfolio from three sectors together too, individual company significance decreased into one third from individual sector situation, as the idea was spread investment equally with one third amounts into these three sectors. So, in this situation weight of individual company was approx. below 21 % (Frankfurt airport); forming some kind of acceptable ground to establish real transportation fund (usually weights in funds are below 10 %).

Interestingly, while examining three different sub-branches altogether, we identified that railway operators were having significant amount of total assets, followed by sea container operators, while airports had small friction of assets as compared to these two first mentioned. However, in total sales, sea container operators recorded highest revenues as a group, while railways was having 40 % lower sales, and eventually airports following far behind these two. So, from business maturity perspective airports examined in this study were still relatively small as compared to two other selected sub-sectors. However, as airports were having revenues of more than 100 million USD at minimum during year 2002, we could argue that they are not anymore start-up phase ventures, but do have remarkable size difference to railway and sea container operators.

5 TARGET SECTORS

In the following the separate business industries are introduced in terms of their development of historical stock prices. The indexes are constructed in the following manner: First there are three indexes built upon the stock price development of companies belonging to the sector in question. The fourth index represents the portfolio investment perspective explained above where all 21 firms are included.

5.1 Railways

The railway markets reflect the renaissance of the confidence of investors all over the world in this business. For example, Warren Buffet is one of the leading investing actors, who recently captured shares in companies that are part of US Railways (Deveau 2007) till he is continuously adjusting his portfolio: While having invested more in BNSF, Buffets reduced his ownership in United Pacific Railways and Norfolk Southern (Lebron Inc. 2008). The core reasons for this tendency are related to the success of liberalization and privatization processes taking place everywhere, but on the other hand there is still great need for further capacity investments in many countries around the world.

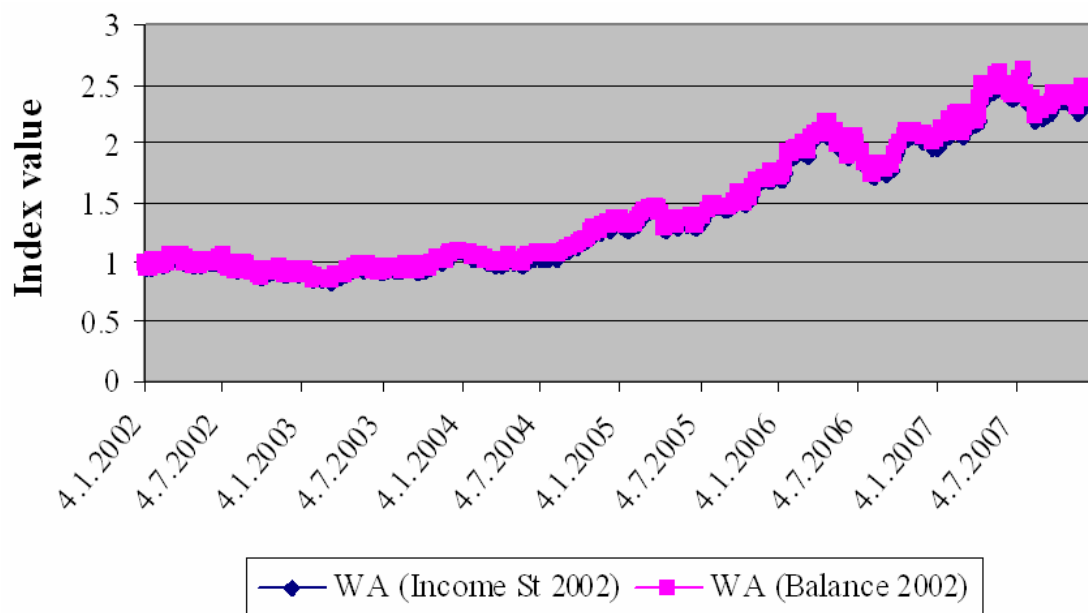


Figure 2. The development of adjusted index of the companies of the railway transport sector during years 2002 and 2007.

The message of index presented in Figure 2 is that the growth of railways during the last six years has been stable – both revenue and total assets model show very similar performance (as total assets model performs just slightly better; reason is the very similar distribution of revenues and assets among the analyzed companies). The value of invested capital in the beginning of 2002 has climbed up by the end of 2007 approximately 140-150 percent. Despite the nice return one can notice that since July 2004 the development includes many short periods of sharper ups and downturns. For example, in summer 2007 the value of the index reached observation period maximum 2.5, and decline by somewhat thereafter. However, high growth period of established two railway portfolios starts roughly in the end of 2004, and continues until early 2007.

5.2 Airports

When taking account the development in the long-term, air transports have been gaining market share from global transportation market; this rise is due to the explosion of high value and limited time-consumable commodities and such modern concepts as “Just-in-Time” and “Zero-inventory” (The International Air Cargo Association 2007).

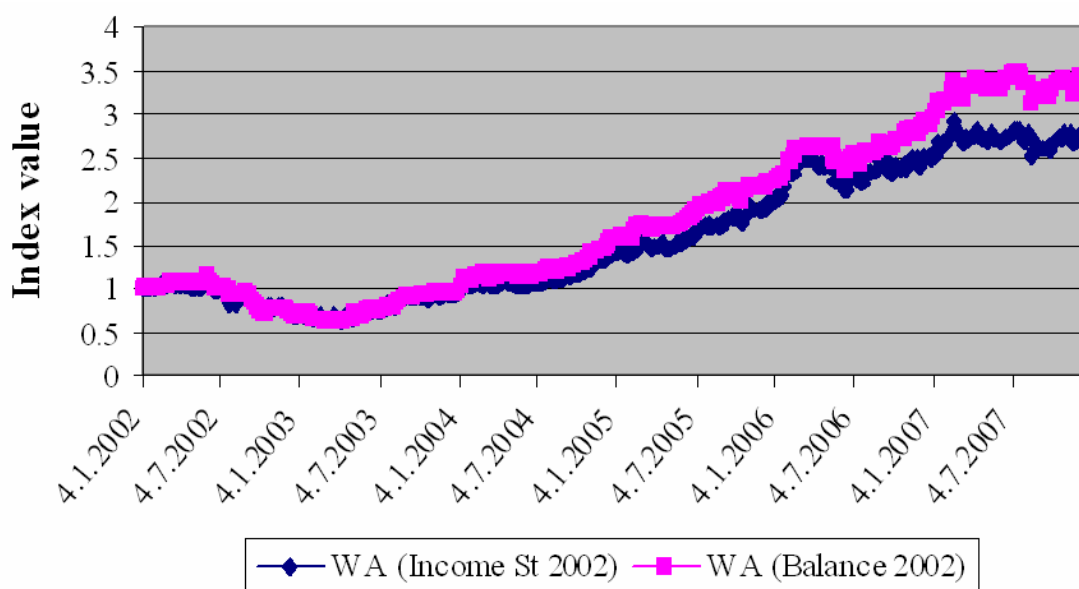


Figure 3. The development of adjusted index of the airport companies of during years 2002 and 2007.

From Figure 3 it can be seen that the value of index between January 2002 and December 2007 rose by 150-250 percent, where once again total assets model performed slightly better than total sales model. The development did not contain any major periods of peaks or recession, just nearly linearly increasing yield after April 2003. Still it is interesting to notify that from January 2002 till July 2003 the value of the index decreased quite substantially, staying for a longer period below 1.0. This was mostly due to IT bubble burst and threat of airline passengers due to uncertainty caused by Sept. 11th in New York.

5.3 Sea Container Transport

The container segment is the number one internationally in terms of freight volumes, but fierce competition and worsening financial results of the companies in this business field is reflected in the share price development. During the last few years numerous mergers have taken place in the international container market, and it can be expected that further steps will follow on mergers & acquisitions front in the future too. Product handling process inefficiencies are common in ports and additional capital investments are needed for new solutions, also increasing container vessel size will not make life easier for this sector either (overall freight prices will decrease, and should result on larger organizations taking care of transportation work).

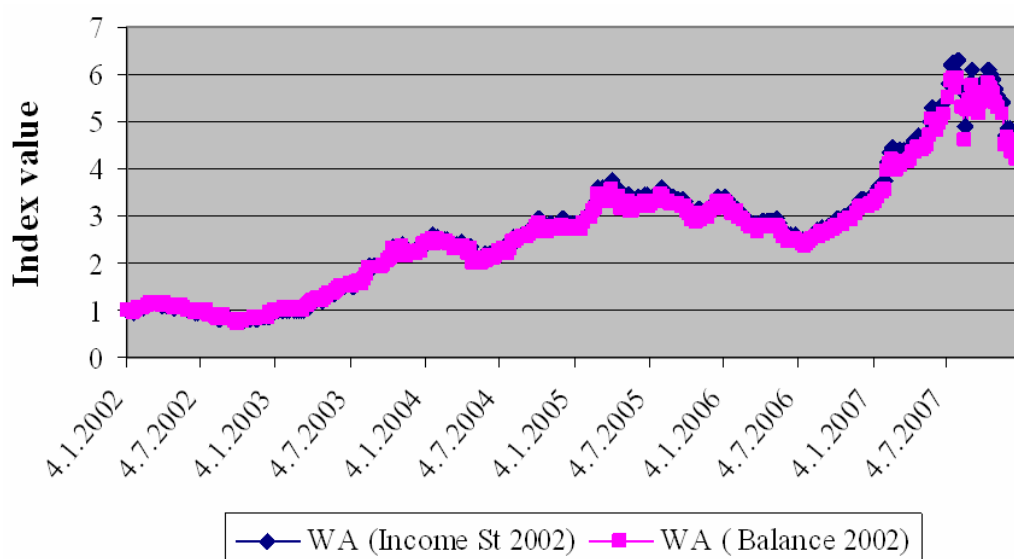


Figure 4. The development of adjusted index of the companies of sea container transport sector during years 2002 and 2007.

From Figure 4 it can be drawn a conclusion that sea container transport could be considered as one of the most attractive sub-sectors for investors during observation period, while showing also some volatility too. The value of index increased during these six years above 300 %, and revenue portfolio performed slightly better than total assets counterpart. However, it should be noted that highest index value during observation period shows value of above 500 % yield, which is much higher than two previous sub-sectors showed. Thus, overall development was compounded with great fluctuations: From mid 2007 the value of portfolio index has decreased substantially. This might be due to the reason of lower than expected global economic / transportation growth caused by lending crisis in US, as well as increased competition in the sector due to larger container vessel size being available in the markets. Containerization International (2006 & 2008) reported that during Nov.2007 there were 166 sea vessels available to serve markets having transportation capacity of above 7000 TEU (49 at service during year 2005); on order amounts were 289 vessels (166 in order book during year 2005), which are creating significant changes for this branch during 2008 and 2009.

5.4 Portfolio View and Comparison to Selected Stock Market Indices

Despite the strong growth of international transportation markets during the last 20 years, there is limited supply chain visibility and the sector is still fragmented (Reidy et al. 2007, 10). According to the newest available information currently the most significant segment – container transportation having nowadays significant position in transportation markets – is on its way of heading to the phase of recession and this is reflected in the portfolio index below (Figure 5). However, established portfolio, thanks to airports and railways, has not experienced that steep decreases as container transportation alone did in previous sub-chapter.

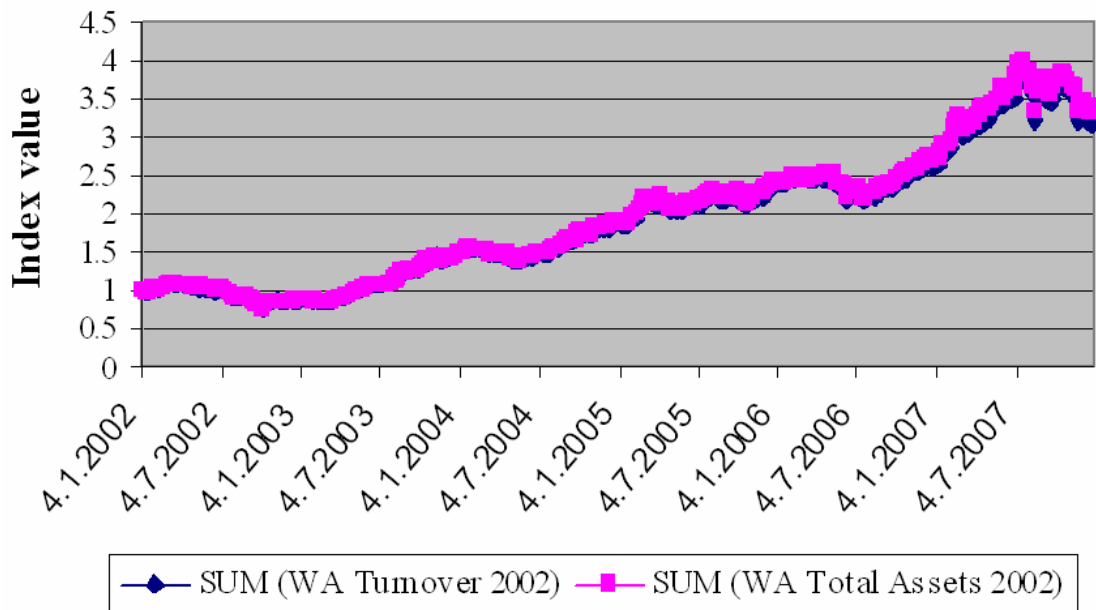


Figure 5. The development of portfolio index of the companies between 2002 and 2007.

The portfolio index above in Figure 5 indicates that the growth in the transport sector was strong between January 2002 and December 2007: 1.0 EUR invested capital in the beginning of 2002 resulted in 3.5 EUR in December 2007. The increase of value of the portfolio index was particularly strong between April 2006 and mid 2007. However, it should be emphasized that that between January 2002 and July 2003 there was leveled off development; the value of the index decreased even a little.

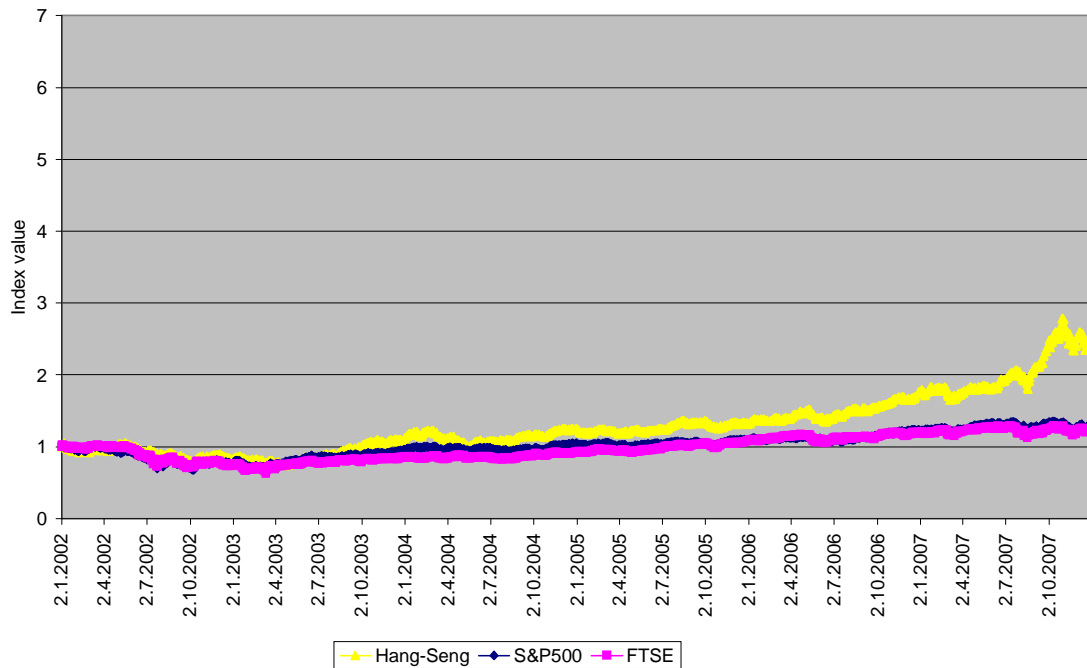


Figure 6. Development of Hang-Seng (Hong Kong, China), S&P500 (New York, US) and FTSE (UK, London).

If this development in hypothetical portfolio of selected transportation companies over the world is being compared into three leading stock market indices from China, US and London, results appear even more interesting. As could be noticed from Figure 6, best performing index in this time period, Hang-Seng, resulted into 150 % increase, while S&P500 and FTSE improved with approx. 30 %. So, proposed portfolio of three sub-sectors produced nearly 100 % points better gain as compared to best performing index, and approx. 8 times higher gain than S&P500 and FTSE. It should be remembered that we did not incorporate dividends in these analysis at all; in selected portfolio companies, e.g. in the case of US railway actors, dividend yield has been constant and increasing within long-term, and would have improved somewhat portfolio gains. This would have extended the difference between stock market indices and built portfolio – if these dividend incomes would have been invested back into chosen portfolio companies, gains would have been even higher (e.g. Siegel 2007 demonstrated the significance of this “invest dividends back” strategy, which was producing very high shareholder value increases in long-term, especially in railway sector stocks).

6 DISCUSSION

As a general conclusion from this study, we could argue that selected a bit exotic sub-branches of logistics and transportation sector seem to have performing well in terms of shareholder value creation. As railways and airports are concerned, these valuations have sustainable profitability and cash flow performance besides of them, while sea container operators still hold future hope in terms of growing sales, and eventually profits. However, comparison of the yields in each of the hypothetical portfolio is pointless without considering the risk, which is involved in investments. Risk and reward are intervened in financial markets, and 10 USD earned with high risk could be considered as poor investment in comparison for 5 USD earned with insignificant risk. Therefore, we have used Sharpe and Sortino ratios to measure the yield of hypothetical portfolio as compared to risks involved. As a risk free interest rate we have used 12 month Euribor average rates from time period of 2002-2007.

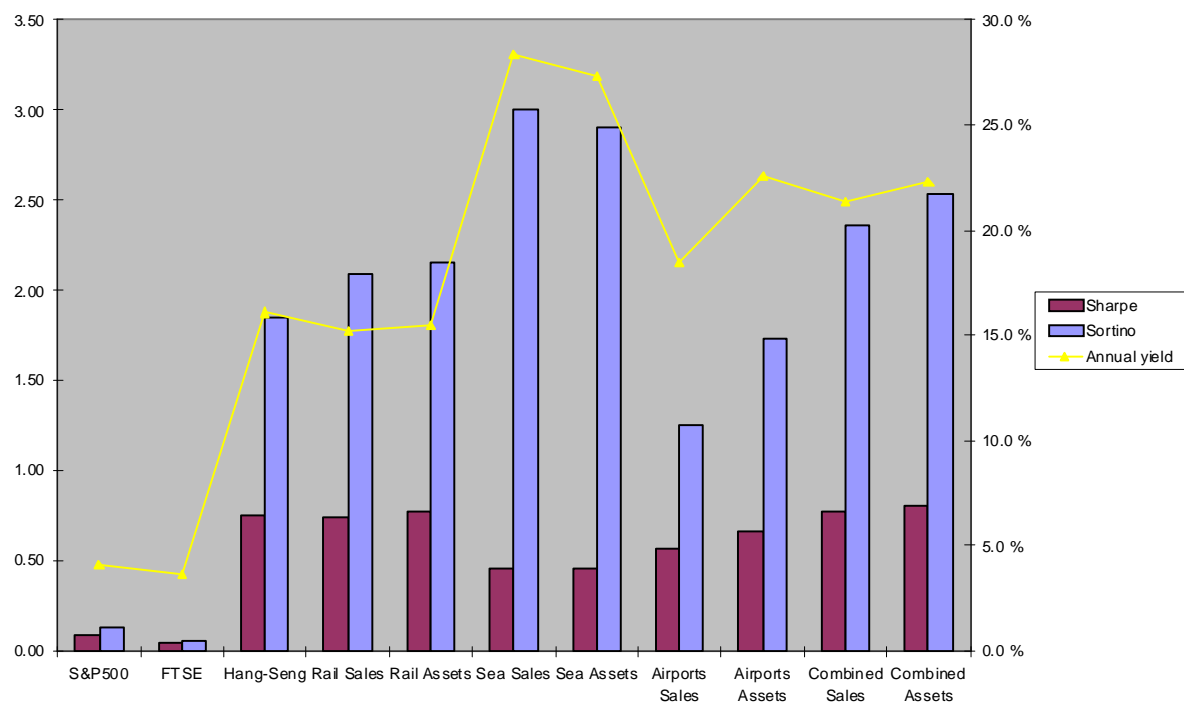


Figure 7. Three stock indices, established sub-branch portfolios and combined transportation portfolio yields, Sharpe ratios and Sortino ratios (risk free yield aver. 12 month Euribor during years 2002-2007, 3.05 % p.a.).

Our risk analysis clearly shows that how poor investments S&P500 and FTSE indexes have been – resulting on low yield with high risk (see Figure 7). As could be noticed,

Sharpe and Sortino ratios are both extremely low, below 0.15. However, different hypothetical sub-branch portfolios have performed all well, where “Rail Sales/Assets” and “Sea Container Transportation Sales/Assets” show most impressive performance. As Sortino value is nearly 3 in sea container transportation case and above 2 in railways, and in both of these branches several times above Sharpe ratio, it means that in this case downside (declining valuation) has not realized in larger scale, and as Figures 1 and 3 earlier have showed, they have constantly increased upwards. Although, investments in these sub-sectors alone could be attractive alternative, our main portfolio of integrating these three sectors together shows surprisingly good performance (especially “Combined Assets” portfolio). Sortino ratio is in this situation nearly 2.5, corresponding firm upwards movement with very low risk to loose money in completed investments – also overall annual yield in observation period is rather handsome. This finding opens up further avenues for research and for allocation mix, since one third policy is just ad hoc, rule of thumb type, and other policies, e.g. based on total assets or revenues of these sub-branches should be investigated further to see whether results are even better. However, this initial finding is encouraging and leaves further research avenues as open.

7 CONCLUSIONS

Two decades ago it would have been impossible to complete this kind of financial performance and shareholder value gain study from logistics / transportations sector, especially from railways, airports and sea container transports. Quite significant changes have occurred due to deregulation, privatization and global economic growth. Also containerization has changed global transportation markets, and resulted in revolution in production and manufacturing specialization. Global change is apparent from chosen case companies; in this study we had companies having their origin from Asia, Europe and Americas. This just illustrates further that change in this sector is global, but in a same time some sectors are better developed in other places than in others (e.g. railways in US and Canada are way further in the process than European counterparts). Our research results in a nutshell could be described with following sentence: *“New comers in transportation and logistics sector are good investment opportunity, showing fairly good financial performance (especially margins of airports and railways are good), and being low risk investment target through diversified portfolio of companies from different sub-sectors.”* However, as our empirical data and literature analysis showed, number of caveats exists even in this sector; slowing down of global economic growth, and introduction of ever larger container vessels could change sea container operator business considerably. Thus, in airports and railway business these kinds of double negative effects are currently non-existent. Anyway, larger ship size will eventually change container transports with trains, but this could be related into higher speeds and investments in railway networks. These change processes hinder great delays, so changes will not occur during near-by years.

In discussion section we already gave some avenues for further research; develop established three sector portfolio further. This is of course rather logical step to be taken. However, new interesting sub-branches are also entering publicly listed status. For example, container leaser Textainer Group, was listed to NYSE during late 2007. Another actor in container leasing business, Cai International inc., was listed to NYSE few months earlier. Until today their valuation has fluctuated around listing price, but are interesting new actors to be followed in the future. Container leasing business is relatively popular choice among users and customers, since nearly 40 % of global

container fleet is being leased (Containerization International 2007: 14-15). Other interesting to be followed sub-sector is sea ports, where e.g. Lyttelton Port Company Limited (of New Zealand) has showed way for constant shareholder value gains after year 2004. Even if global stock markets have declined in the recent months a lot, this seaport has been able to sustain its valuation (actually it increased whole year of 2007!).

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APPENDICES

APPENDIX A – Formulas Used in Indicator Calculations

1. **Return on Equity (ROE):** $\text{Net Income} / \text{Shareholder's equity}$
2. **Reinvestment rate:** The rate at which cash flows from fixed-income securities may be reinvested. Because of the additional interest income, bondholders can make larger investment returns, if they reinvest received coupon payments.
3. **Return on Assets (ROA often ROI):** $\text{Net Income} + \text{Interest Expense} / \text{Total Assets}$
4. **Return on Invested Capital (ROIC):** $\text{Net Income} - \text{Dividends} / \text{Total Capital}$
5. **Cash Flow to Sales:** $\text{Sales per Share} / \text{Cash Flow per Share}$
6. **Net margin (often net profit margin):** $\text{Net profit} / \text{Net revenues}$

**APPENDIX B – Portfolios of Sea Container Operators (first) and
Airports (second)**

Revenues	12/31/2002		12/31/2006	
	USD, mill.		USD, mill.	
APMaersk	21,397.00	39 %	46,850.00	46 %
APLNept	4,781.00	9 %	7,485.00	7 %
CSAV	1,660.00	3 %	3,818.00	4 %
Evergreen	1,963.00	4 %	4,606.00	5 %
Hanjin	4,683.00	9 %	7,216.00	7 %
NYK line	9,644.00	18 %	16,211.00	16 %
OOIL	2,459.00	5 %	4,606.00	5 %
MOL	7,628.00	14 %	11,484.00	11 %
Total	54,215.00	100 %	102,276.00	100 %

Total Assets	12/31/2002		12/31/2006	
	USD, mill.		USD, mill.	
APMaersk	24,079.00	40 %	54,792.00	52 %
APLNept	4,739.00	8 %	4,228.00	4 %
CSAV	1,123.00	2 %	1,701.00	2 %
Evergreen	3,407.00	6 %	3,766.00	4 %
Hanjin	4,676.00	8 %	6,778.00	6 %
NYK line	11,260.00	19 %	15,709.00	15 %
OOIL	2,183.00	4 %	5,605.00	5 %
MOL	9,069.00	15 %	12,333.00	12 %
Total	60,536.00	100 %	104,912.00	100 %

Revenues	12/31/2002		12/31/2006	
	USD, mill.		USD, mill.	
Airp del S	119.00	4 %	208.00	4 %
Cop airp.	303.00	10 %	510.00	10 %
Frankfurt	1,891.00	63 %	2,831.00	57 %
Vienna	318.00	11 %	775.00	16 %
Zurich	382.00	13 %	605.00	12 %
Total	3,013.00	100 %	4,929.00	100 %

Total Assets	12/31/2002		12/31/2006	
	USD, mill.		USD, mill.	
Airp del S	1,082.00	12 %	1,386.00	10 %
Cop airp.	1,202.00	13 %	1,426.00	10 %
Frankfurt	3,786.00	42 %	5,648.00	41 %
Vienna	840.00	9 %	2,577.00	19 %
Zurich	2,145.00	24 %	2,602.00	19 %
Total	9,055.00	100 %	13,639.00	100 %



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