MII Investment Memo

TO: McIntire Investment Institute
FROM: Thomas Chen, CLAS 2012
SUBJECT: Election Memo – NSC
DATE: November 30, 2009

Norfolk Southern

Sector: Transport | Industry: Railroads | NYSE: NSC

Thesis: A domestic leader in transport of goods on the East coast, Norfolk Southern presents a long-term investment opportunity for the McIntire Investment Institute because of increasing oil prices and environmental regulation, focus on intermodal transportation, and competent management.

I. Financial Summary

Share Price	$51.19
Shares Outstanding	368M
Market Cap	$18.83B
LT Debt	$7.20B
P/E (forward)	15.03
52 Week Range	$26.69 - $52.84
Float	366.79M
Short Interest	5.29M
Avg Daily Volume (3m)	4,041,170
Beta	0.97

II. Business Overview

Norfolk Southern Corporation (Norfolk Southern) engages in the rail transportation of raw materials, intermediate products, and finished goods primarily in the southeast, east and Midwest, and via interchange with rail carriers, to and from the rest of the United States. Norfolk Southern also transports overseas freight through its Atlantic and Gulf Coast ports. Its operations include the transportation of coal, intermodal containers, agricultural products and consumer products. The intermodal traffic includes shipments moving in trailers, domestic and international containers, and roadrailer equipment. As of December 31, 2008, Norfolk Southern's railroads operated approximately 21,000 miles of road in 22 eastern states and the District of Columbia.

*See Appendix, Figures 1, 2

Coal Industry

Critical to the rail transport industry, coal makes up over half of all U.S. rail shipments. According to the Energy Information Administration (EIA), in the first half of 2009 there was a decline in coal consumption; continuation of this trend led to an overall decline in 2009. However in 2010 it is expected for coal consumption to grow. Coal production for the first half of 2009 fell by 5% in response to lower U.S. coal consumption, fewer exports, and higher inventories. There is a projected decline of 7% for 2009. Projected production declines by an additional 1.4 percent in 2010 despite increases in domestic consumption and exports.

*See Appendix, Figures 3, 4

Intermodal Traffic

Intermodal freight transport accounts for about 20% of Norfolk Southern's operating revenues. It involves the transportation of freight in a container using multiple modes of transportation (rail, ship, and truck) without any handling of the freight itself when changing modes. This method reduces cargo handling, and so improves security, reduces damages and losses, and allows freight to be transported faster. Competition between trucking is heaviest in this segment; however, one intermodal train removes more than 280 long-haul trucks from the nation's highways.

*See Appendix, Figure 5

Competitors

Norfolk Southern competes against other major railroad companies, but mostly against CSX. It also directly competes with trucking and shipping industries. Norfolk Southern and CSX are both comparable in size and revenue. CSX has a larger rail network but Norfolk Southern consistently tops CSX in train speed and average dwell time. Norfolk Southern also has a significantly better operating ratio than CSX: 72.8% vs. 77.8%. Recently, due to rising oil prices and more environmental regulations, railroads have benefited on behalf of the trucking industry. A train can ship 1 ton of cargo 400 miles on 1 gallon of diesel, whereas a truck can ship 1 ton of cargo only 125 miles on 1 gallon of diesel. Therefore the trucking industry is more sensitive to fluctuations in oil prices.

*See Appendix, Figures 6, 7

Management

Norfolk Southern is backed by a competent and experienced management team. Charles W. Moorman IV, Chairman, CEO, and President of Norfolk Southern has been with the company since the 1970's and is a graduate of Georgia Tech and Harvard Business School. CFO James A. Squires has also been with Norfolk Southern since the 1990's and is a graduate of Amherst College and the University of Chicago. All other executive members have been with the company since the 1970's and have contributed to the growth of the company.

III. Investment Theses

1. A bet on railroads is a bet on the economy

Freight railroads are the lifeblood of the economy. Carrying goods across American soil, they are a proxy for both U.S. and international economic growth. They also move more freight than any other mode of transportation and keeps America moving forward. Freight railroads have invested more than $440 billion since 1980 to improve tracks, bridges, tunnels, locomotives, freight cars, and other infrastructure and equipment and it continues to pay off. Since 1981 the average inflation-adjusted rail rates have dropped nearly 50%, meaning more savings for consumers. Rail productivity is also up 144%: more than 43% of all intercity freight is by rail, including 71% of nation's coal and 35%of its grain. According to the U.S. Department of Transportation, freight railroads will be more essential in the future with expected growth in demand of 92% from 2002 through 2035.

American freight railroads are also monopolistic in nature, with only 2 major companies dominating the eastern United States (Norfolk Southern and CSX). In addition, railroads have high barriers to entry; thousands of miles of track have to be laid, thousands of locomotives purchased, coupled with the existing network of rails from New England to the Midwest to Florida, new entrants are highly unlikely. This is in stark contrast to the trucking industry where all you need is a tractor and a license. The most competitive area for freight railroads is intermodal transportation, where long-distance carried by rails is then transferred to 18-wheelers for final delivery. Probably the most valuable part of the transportation chain, intermodal traffic has seen a decline in the past year for rails; however, during the 2008 recession, cost awareness of customers made rails a better alternative to trucks. This helped build market share for the rail companies and better position themselves during the economic upturn. Complementing economic recovery will be an increase in international trade volume, leading to accelerating intermodal traffic, where railroads are poised to benefit. The health of our economy resides heavily in rails – investing in rails boosts the nation's economy. According to the U.S. Department of Commerce, every dollar spent on investments in our freight railroads yields $3 economic output. In addition, each $1billion of rail investment creates 20,000 jobs.

2. Environmental reform in the US will increase demand for Norfolk Southern's services

Railroads move 40 percent of our nation's freight and yet only accounts for just 2.2% of all transportation-related greenhouse gas emissions while trucks emit 21%. Americans are expecting cleaner, safer, and more efficient transportation solutions. A larger freight rail network translates to energy savings – it also means less traffic congestion. According to the Association of American Railroads (AAR), highway gridlock today costs the nation an estimated $78 billion in wasted travel time (4.2 billion hours) and wasted fuel (2.9 billion gallons). A single train can take the load of 280 trucks off the road – equivalent of 1,100 cars; it can also move a ton of freight an average of 436 miles on a single gallon of diesel. That's close to four times as far as it could move by truck.

In the past, the trucking industry has had an advantage over the rail industry because of the low energy costs and highway flexibility. However, as fuel prices and environmental concerns increase, we will be soon looking at locomotives for long distances and trucks for shorter distances. Freight trucking carrier costs continue to rise as diesel fuel prices increase, high way congestion worsens, and stricter emission standards are implemented. On the other hand, railroad industry has partnerships with various federal and

state governmental agencies that allows them billions of investments to upgrade and expand rail freight capacity in the United States. This allows railroads to compete more effectively with trucking for long-haul freight shipping.

For long-haul routes, rising gas prices are giving railroads the edge on costs. Norfolk Southern ships one ton of cargo 410 miles on a gallon of diesel fuel compared to about 120 miles for rival truckers. Currently, Norfolk Southern's strength is in the intermodal business. With coal currently accounting for most electricity generation in US and growing demand of power generation, the use of intermodal traffic for coal will increase domestically as well as internationally. Furthermore, Don Yeager, CEO of the Hub Group, a freight company specializing in intermodal services and logistics, agrees: "*We believe that business conditions are better and have become more stable. The future remains bright for intermodal due to the excellent service, a cost advantage over trucks, and the environmental benefits.*" Shipping lines have also begun to shift some of their Asia-U.S. routes to the east coast over the past few years and Norfolk Southern executives have said that about 50%of their container business now comes in through east coast ports, as opposed to only 20% a few years ago. With 21,000 miles of track across 22 states comprising 2/3rds of the American population, Norfolk Southern is in position to benefit under rising fuel prices, environmental stringency, and energy demand.

3. A Fundamental Overview of Norfolk Sourthern vs CSX

The stock market hit bottom in March, as did the transportation sector, measured by the ETF iShares Dow Jones Transportation Average (NYSE: IYT); however, since then it has skyrocketed 85 percent. Even though the transportation ETF has gone up, it could have been high albeit for some disappointing 3rd Quarter earnings from rail companies. Although CSX did the least worst within the five major freight rail companies, its ratios are less than stellar.

A. Financials

Norfolk Southern is exploiting operating leverage better than any other carrier. Since 2001, Norfolk Southern has seen sales jump 54 percent to around $9.5 billion, while its operating expenses grew just 35 percent. This resulted in an explosion in earnings and a jump in share price from $18 to $54.

I. Industry Metrics

Comparing industry metrics, we can see that Norfolk Southern's total debt is 6.67B; albeit high in the industry, it's lower than CSX's 7.5B total debt. Furthermore, it's operating ratio (71.1%) is lower than industry's whereas CSX's is average (75.4%); we can see how this comes into play later when Norfolk Southern was less affected by revenue decreases than did CSX.

Norfolk Southern spent a total of $977M on fuel costs for its 95,000 or so locomotives, whereas CSX spent a whopping $1.82B for its 91,000 or so locomotives; that's twice as much as Norfolk Southern!

II. Income Statement and Balance Sheet

Both Norfolk Southern and CSX turned out higher than industry average revenues and operating margins, but only Norfolk Southern had a higher than industry average EBITDA and net margins. High operating margins coupled with low expenses results in high EBITDA.

CSX also has a higher than industry average debt/equity ratio (2.17) than Norfolk Southern (1.69), which has is industry average.

*See Appendix, Figure 8

III. Valuation

CSX runs an industry average with valuation ratios, but Norfolk Southern has the highest dividend yield (3.5%) and payout ratio of the entire industry, and has consistently paid a growing dividend for over 26 years; this shows the continuous growth and stability the company is able to provide to its shareholders.

B. Joint Operations

Through careful planning of logistics, Norfolk Southern has managed to cut locomotive costs and increase savings, leading to a deal with J.B. Hunt Transportation Services', a leader in the trucking industry, to expand and cooperate on intermodal transport. CEO of J.B. Hunt Transportation Services Thompson realizes intermodal potential and believes Norfolk Southern is the leading player:

"*Given the enormous confidence we have in the Norfolk Southern's ability to provide the best intermodal service in the Eastern half of the U.S. and the obvious commitment NSC has made by the significant investments in their corridor development, we are delighted to have the opportunity to elevate our joint services into the future. This new agreement will provide unparalleled intermodal service and value for U.S. shippers. The conversion of highway freight to the more efficient, cost effective, safer and more environmentally friendly services that we jointly provide, will not only benefit shippers and the general public, but JBHT and NSC shareholders alike.*"

This multi-year agreement not only further solidified the two parties as leading providers of transcontinental and local intermodal service in the eastern half of the United States, but also strengthened the relationship between the two, which will offer benefits by reducing highway congestion, fuel consumption, and emissions.

*See Appendix, Figure 9

C. The Crescent Corridor Expansion

Norfolk Southern also plans to expand its current rail system through the Crescent Corridor Expansion due by 2013; this line will run 2,500 miles of track along several interstate highways and will be a major intermodal corridor between Louisiana and New Jersey, serving some of the biggest manufacturing centers and connecting them to marketplaces around the nation. This expansion in joint with the trucking industry (for short-distance hauls) will relieve traffic congestion by hundreds of thousands of truckloads, help the environment from removing trucks from long-haul transport, and save Americans 100million gallons of fuel a year.

D. CSX Fails to Deliver

CSX is majorly flawed in two aspects. The first being its operational metrics are subpar in comparison to the industry; the second being its management is incompetent.

In an industry where reliability and speed are critical, CSX lags in key performance areas such as train speeds, on-time arrivals and departures, accidents, etc. This is largely due to the complexity of CSX's rail road system, the aftermath of a merger between two separate railroads. The integration of these networks results in more operational difficulties than NSC. As a result, in 2007 hedge funds TCI and 3g Partners acquired large stakes in the company and launched a proxy battle to secure seats on the board of directors. Their letter to the board illustrates their dissatisfaction with CSX management:

"It is our view that CSX management does not fully understand the economics of the business, is cavalier about potential risks, is undisciplined about spending, is unrealistic about future prospects, is complacent about operational underperformance and is unnecessarily adversarial towards labor, shippers, and shareholders. We hold the Board accountable for these failings."

On the other hand, in 2009 Norfolk Southern reported a 6% improvement in overall customer satisfaction with transit time performance and a 10% improvement in service consistency. CMO Don Seale had this to say, "As you know, our strong service product is a major driver in improving yield in the marketplace. Service consistency is the number one priority for most of our customers and the magnitude of improvement here is for future price support."

Not only are Norfolk Southern's financials solid against CSX's, its management's direction toward intermodal transport, the company's superior performance metrics and customer satisfaction escalates Norfolk Southern above CSX.

IV. Valued-Added Research Contacts

- Dan Keen, Assistant Vice President of Policy Analysis, Association of American Railroads (AAR)
    - Trucks and Railroads will be equally important roles in the economic recovery. How much railroads will grow...depends on competitive factors. It's safe to say it's well positioned; environmental consideration more important, it's clear railroad has solid environmental advantage
    - Railroad workforce skewed towards older, demographically. Older than most other industries; consequently retirement in 5-10-15 age, retaining/retraining/replacing will a challenge. Railroad not covered by SS but by railroad retirement, which is more generous; industry will continue to fund retirement obligations for years to come.
    - At AAR we lobby legislation - 60bn affecting every retail, wholesale, affects economy; policy could help/hinder
    - Railroads don't create demand, creature of demand; lower retail sales and lower industrial production lead to direct negative effect on railroads
    - There is a strong positive correlation between economic growth and rail industry
    - Intermodal traffic accounts 20% rail revenue, 20-25 years, commodity segment fastest growing; int'l import/export 60% intermodal traffic, import majority
    - No question with rise in imports we've seen from china and elsewhere there will be more traffic moving by rail, no question about that
    - Huge number of things that affect level of imports: exchange rates, level of growth here/other markets, technological change, geopolitical consideration
    - Future continues as recent past: imports/globalization in general will continue to be a more important part of US economy/consumption and railroads will play a role

- Jeffrey Yao, MBA from Darden at the University of Virginia, Individual Investor experience in freight industry
    - Buying railroads is certainly not just oil play - otherwise Buffet can just buy oil why bother a rail company. My take is broadly it's a long-term bet on US economy (logistics is an economy's blood), and also anti-inflation play - when economy is good, transportation volume goes up; when there is inflation, you can charge higher price. The sector competition with truck I think is just another plus with potential higher oil price - truck is hard to compete with rail on transporting long distance large volume commodities.
    - On oil price - I've seen forecast that by 2020 Chinese consumption is going to exceed that of the US due to their relentless urbanization(and Chinese consumption growth has exceeded most analysts' forecast during the past few years). If that's true, even if China's energy use/person is much less intense that that of the US, oil is not going to be $70 by then. And there is also added pressure from other emerging economies. Alternative energy use is going to be gradual and carefully watched.

- My outlook on coal is positive. Again watch out for China - world's largest coal consumer (think it's 2+ billion tons/year). Growth is robust there. As the cheapest energy source human can find for the foreseeable future, its role is irreplaceable.

- Leanne D. Marilley, Investor Relations, Norfolk Southern
  - We expect coal exports to be higher next year
  - Price negotiations are more difficult and challenging in today's environment than it was this time last year
  - Company is very pleased with customer satisfaction. CMO Don Seale: "That is significant. And that means that we're more affective with respect to competing with truck and the other rail competitors and that translates to value in the marketplace. And our prices will reflect that."
  - Once Heartland Corridor opens up in 2010 we'll immediately change our operating plan to reflect that and start moving a lot more intermodal traffic up from the Hampton roads to Columbus and the Midwest as well as some traffic the other way
  - We justify projects based on operation savings
  - Train speed is certainly a good thing, but delays can be caused by weather
  - We have a positive outlook on domestic intermodal
  - Chinese steel industry this year is projected to produce over 400 million tons of steel to feed infrastructure projects driven by their stimulus plan – compared to the U.S. 73 million tons; Chinese cargos are a very small percentage of our total export, so they're taking it from Australia, which frees up our capacity into western Europe, which is where we will see the majority of our stronger position

Awaiting Response:

- Tweedy Browne
- Vinik Asset Management
- Erik Marshall, Director, Hodges Capital
- Bruce Reynolds, Economics Professor, UVa
- Lee Coppock, Economics Professor, UVa
- Bill Greene, Analyst, Morgan Stanley Research, North America Transportation Group
- Jason Siedl, Analyst, Dahlman Rose
- Ed Wolfe, President, Wolfe Research
- Gary Chase, Analyst, Barclays Capital
- Justin Yagerman, Analyst, Deutschebank
- Tom Wadewitz, Analyst, JP Morgan
- Jon. A. Langenfeld, Senior Research Analyst, Robert W. Baird & Co.

V. Ideas for MII Improvement

- More focus on membership in the following ways:
    - Group projects: Have one to three students form a group and do a presentation on a sector or review a pitched stock and have them discuss with the associate
    - Regulated hierarchy – must have pitched at least one stock to become analyst, written memo for associate, etc.
- Ratings on stock pitches by analysts
    - Give pointers/tips formally
        - The following week the associate will explain the management's decision in which the analyst from the prior week has to attend
    - Gives analyst motivation
    - Rate them based on quality of work as well as accuracy
- Publicity:
    - Currently MII is mostly known within its "pre-Comm" designated student boundaries
        - Collaboration with other non-commerce CIO's to branch out
- Member attendance perks
    - Regulated attendance policy perhaps to give members with better attendance records chance to pitch stock if there is ever a scheduling conflict

V. Appendix

Figure 1. Norfolk Southern Corporation System Map

Figure 2. NSC 2008 Operating Revenues Breakdown by Commodity

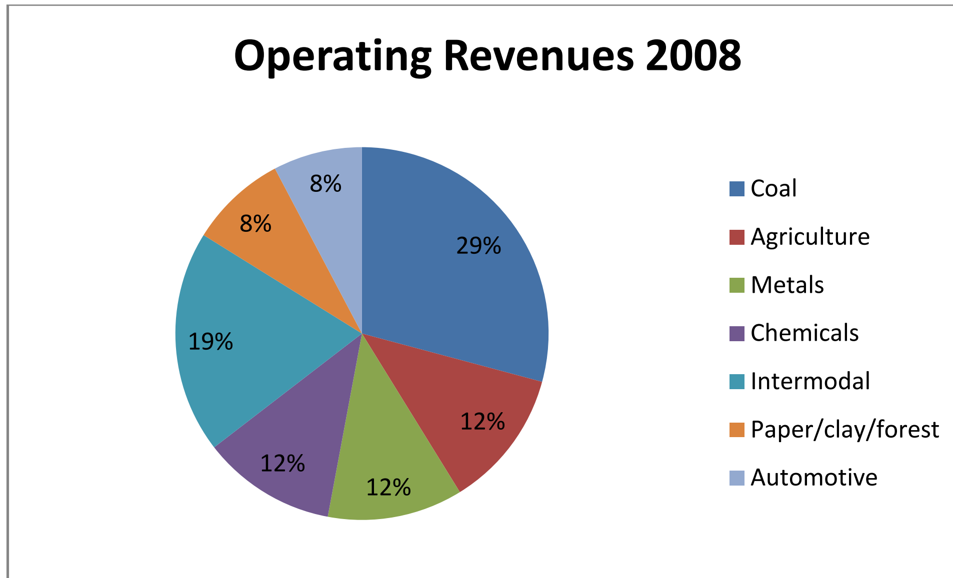


Figure 3. Coal Traffic

Total US Rail Traffic

Major Commodity Groups	Total	Grain	Chemicals	Food	Forest	Metals	Coal	Autos	Intermodal
Current Week									
Vs. 2008	(5.3%)	7.3%	6.6%	3.4%	(16.5%)	(4.9%)	(11.4%)	(1.5%)	(3.6%)
Vs. 2007	3.9%	4.9%	4.1%	6.9%	(17.8%)	(21.2%)	0.2%	(4.9%)	7.0%
4 Week Rolling Avg.									
Vs. 2008	(9.4%)	5.7%	3.1%	2.3%	(21.1%)	(16.5%)	(14.3%)	(6.0%)	(8.1%)
Vs. 2007	(12.7%)	(6.4%)	(8.1%)	(3.4%)	(27.5%)	(37.8%)	(9.6%)	(29.4%)	(10.6%)
Quarter to Date									
Vs. 2008	(11.4%)	3.1%	(0.8%)	0.8%	(22.3%)	(25.2%)	(14.6%)	(11.3%)	(9.5%)
Vs. 2007	(14.4%)	(10.4%)	(9.2%)	(4.8%)	(28.3%)	(40.7%)	(9.7%)	(31.7%)	(11.8%)
Year to Date									
Vs. 2008	(16.7%)	(17.3%)	(12.1%)	(8.9%)	(26.5%)	(41.9%)	(10.5%)	(37.8%)	(15.6%)
Vs. 2007	(18.1%)	(12.7%)	(13.0%)	(10.0%)	(33.7%)	(45.0%)	(7.0%)	(49.6%)	(17.0%)

Figure 4. Total World Electricity Generation

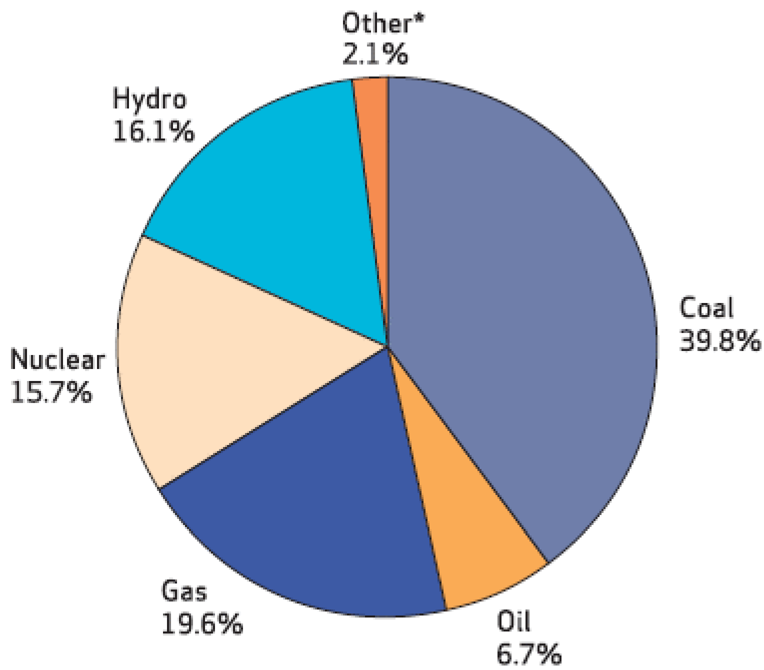


Figure 5. Weekly Loaded Units (4 week rolling averages)

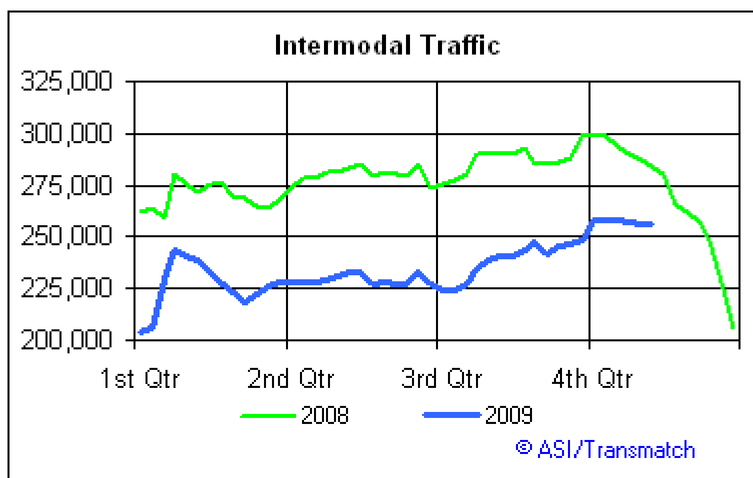


Figure 6. Comparison of Railroad Companies: Ratios

(billions)	BNSF	KC Southern	CSX	Norfolk Southern	Union Pacific	Canadian National	Canadian Pacific	Average
ticker	BNI	KSU	CSX	NSC	UNP	CNI	CP	
Market Cap	28.8	2.5	17.8	20.2	30.0	28.3	10.6	19.7
Net Debt	7.6	1.6	5.2	5.7	6.7	5.3	2.1	4.9
Revs	15.3	1.7	9.8	9.3	15.8	7.9	4.6	9.2
OI	3.4	0.3	2.1	2.5	3.1	3.1	1.1	2.2
NI	1.8	0.1	1.2	1.5	1.7	1.8	0.7	1.3
Net Margin	11.7%	6.1%	12.7%	15.8%	11.0%	23.3%	14.9%	13.6%
ROA	6.7%	4.4%	5.1%	6.1%	5.2%	8.1%	6.4%	6.0%
ROE	17.3%	8.0%	13.9%	14.9%	11.6%	19.3%	14.3%	14.2%
TTM P/E	16.6	26.3	15.0	14.0	17.7	15.9	15.7	17.3
Fwd P/E	13.4	17.6	13.7	12.1	14.1	14.4	15.1	14.3
Div Yld	1.6%	0.0%	1.5%	2.0%	1.2%	1.5%	1.3%	1.3%
Net Debt/OI	2.2	5.0	2.5	2.2	2.2	1.7	1.9	2.5

Figure 7. Total Industry Rail Traffic by Individual Carriers

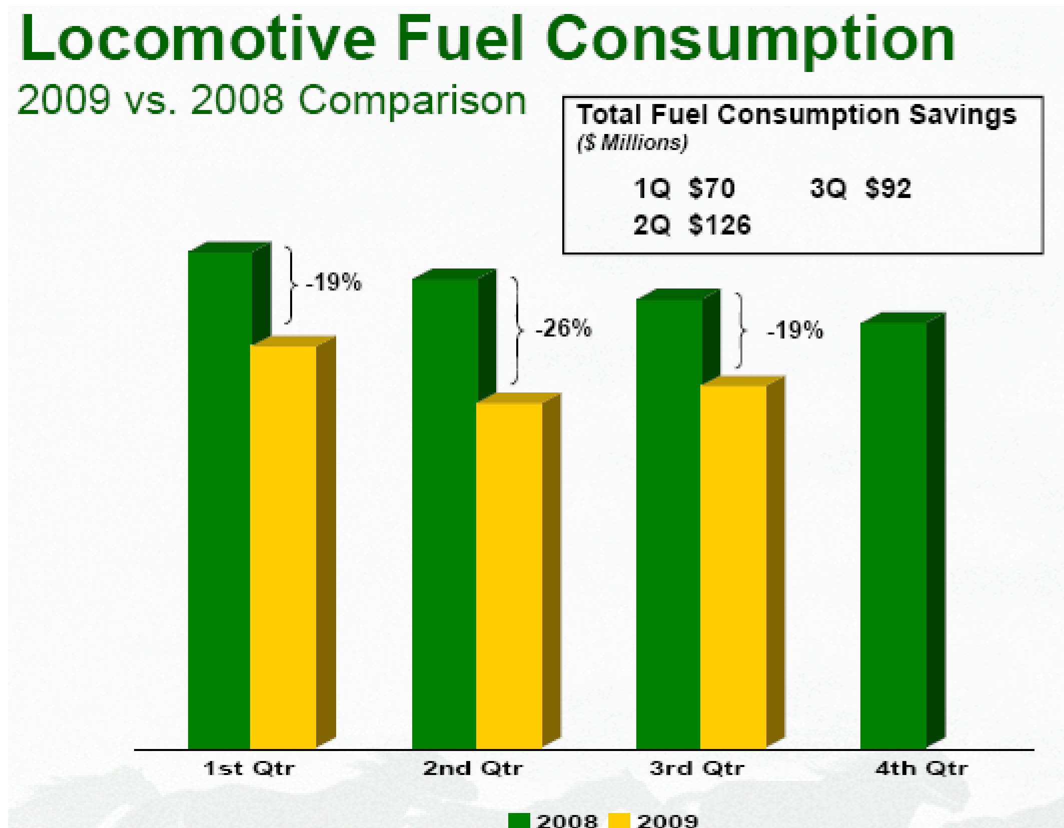
Individual Carriers

Carriers	CSX	NSC	BNSF	KSU	UNP	CNI	CP	KCS de Mex.
Current Week								
Vs. 2008	(2.1%)	(7.0%)	(11.5%)	1.4%	(1.9%)	(1.1%)	(6.4%)	(0.9%)
Vs. 2007	3.4%	5.4%	(6.8%)	(0.3%)	(0.1%)	(6.1%)	(4.0%)	(14.2%)
4 Week Rolling Avg.								
Vs. 2008	(7.2%)	(10.7%)	(13.6%)	(0.6%)	(6.7%)	(2.4%)	(10.0%)	(4.6%)
Vs. 2007	(11.2%)	(12.2%)	(16.8%)	(7.3%)	(14.5%)	(8.4%)	(10.0%)	(12.8%)
Quarter to Date								
Vs. 2008	(9.6%)	(12.9%)	(14.7%)	(1.5%)	(9.0%)	(5.7%)	(11.0%)	(8.9%)
Vs. 2007	(12.3%)	(14.6%)	(17.4%)	(1.4%)	(15.9%)	(9.7%)	(9.5%)	(13.6%)
Year to Date								
Vs. 2008	(16.4%)	(20.3%)	(16.3%)	(6.2%)	(17.5%)	(16.9%)	(18.5%)	(21.5%)
Vs. 2007	(18.5%)	(21.9%)	(18.2%)	(7.7%)	(20.5%)	(16.0%)	(12.8%)	(23.2%)
Market Share								
2009	19.2%	19.8%	28.1%	3.3%	25.8%			
2008	19.1%	20.7%	27.9%	2.9%	26.0%			

Figure 8. Norfolk Southern Income Statement Growth Chart

	2006	2007	2008	2009EST	2010EST
Revenues ($M)	9407.0	9432.0	10661.0	8036.62	8693.81
Growth	-	.26%	13%	-24.6%	8.1%
EBITDA ($M)	2230.0	2237.0	2750.0	-	-
Growth	-	.3%	23%	-	-
EPS (p)	-	3.68	4.52	2.79	3.42
Growth	-	-	22.8%	-38.3%	22.6%

Figure 9.Locomotive Fuel Consumption



Additional

Risks

Government regulation

Competition from trucking/shipping companies

Heavily unionized: post-retirement pension/healthcare

Capital intensity is high

Oil prices affect NS' results of operations in a variety of ways and can have an overall favorable or unfavorable impact in any particular quarter or year. In addition to the impact of oil prices on general economic conditions and traffic volume, oil prices directly affect NS' revenues through market-based fuel surcharges and contract escalators (see *"Railway Operating Revenues"*) and also affect fuel costs (see *"Railway Operating Expenses"*). For 2008, oil prices had an overall favorable impact on income from railway operations. Future changes in oil prices may cause volatility in operating results that could be material to a particular quarter or year.